

PROPOSAL * SPECIFICATIONS * CONTRACT * BOND FORMS

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SEGUIN, TEXAS

COUNTRYSIDE 12" WATER MAIN

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SEGUIN CITY COUNCIL

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Douglas G. Faseler, City Manager

Rick Cortes, Assistant City Manager

Joe Ramos, P.E., City Engineer

Nathan Garza, Project Manager

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**TRC ENGINEERS, INC.
505 EAST HUNTLAND DR., SUITE 250
AUSTIN, TEXAS 78752
T.B.P.E. FIRM REGISTRATION # F-8632**



August 2014

209248

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INVITATION FOR BIDS

Sealed bids addressed to the City Manager of the City of Seguin, Guadalupe County, Texas will be received at the Seguin City Hall, 205 North River, Seguin, Texas, 78155, until **2:30 P.M., September 9, 2014 (CDST)** for the **SH123 BYPASS WATER LOOP – Phase II – US90A to Countryside and Phase III – Countryside to Meadows at Nolte Farms**. The bids will be publicly opened and read aloud at the Seguin City Hall at 3:00 P.M. Bids shall be submitted in a sealed envelope (8 ½” x 11” minimum), clearly marked as follows:

SEALED BID:

SH123 BYPASS WATER LOOP

Bid Package No. 24-2014-38

To be opened at 3:00 P.M., Tuesday, September 9, 2014

Principle items of construction will include:

Installation of new 12-inch diameter PVC C-900 waterline including fire hydrants, service, and appurtenances. Phase II along Preston Drive, FM466 and Countryside Blvd. and Phase III Countryside Blvd. along Joe Carrillo Street and Barnes Drive to Meadows at Nolte Farms.

Each bid must be accompanied by a certified or cashier's check, or an approved bidders bond in an amount not less than 5% of the maximum total bid, payable to the City of Seguin, Texas without recourse, as a guarantee that the Bidder will enter into a contract and execute performance and payment bonds on the forms provided, within ten (10) working days after the award of contract.

Bidding forms, plans, and specifications may be examined free of charge or obtained at City Hall, 205 N. River, Seguin, Texas in the Public Works office on the second floor upon receipt of payment of fifty dollars (\$50.00) or may be obtained on the City's website at www.seguintexas.gov/bid_opportunities. Please make checks payable to the City of Seguin. Payment is non-refundable.

A pre-bid conference will be held Tuesday, August 26, 2014 at 2:30 PM in the City Council Chambers located in the Seguin City Hall, 205 North River, Seguin, Texas 78155.

The City of Seguin reserves the right to reject or accept any or all bids or combination of bids and to waive informalities.

Douglas G. Faseler, City Manager
CITY OF SEGUIN, TEXAS

SECTION B
SPECIAL INSTRUCTIONS

B.1. SCOPE OF PROJECT

Principle items of construction will include:

Installation of approximately 4,000 linear feet of 12" water main from Countryside Blvd. (near Topaz Ave.), extending south on Countryside Blvd. to Joe Carrillo Blvd., south along the western property of the SISD elementary school to Jim Barnes Drive extending onto Harry Miller Pass and terminating at the property line of the proposed subdivision (The Meadows at Nolte Farms) with all necessary appurtenances and connections.

B.2. PROPOSALS AND METHOD OF BIDDING

The proposal consists of various major items of work. Bidders will provide prices for each item in the proposal. The prices will be entered in the appropriate spaces in both script and figures. Should the Bidder have costs for any incidental work where a bid item does not occur, the costs of such work will be reflected in the unit costs of the bid items in the proposal. No separate payment will be made for any work other than those items occurring in the proposal.

At the time of proposal submittal, bidders will provide a Contractor Work Plan, which details the approach and scope of the work to be performed. The Contractor Work Plan shall include a proposed schedule for completion of all work to be performed.

Bidders are hereby notified of the number of calendar days for completion of the project in Article B.62. of this section.

Bidders shall bid all items in the proposal.

B.3. OBLIGATION OF BIDDER

Prospective bidders shall make a careful examination of the site of the project, soil and water conditions to be encountered, construction to be projected, disposal sites for surplus materials not designated to be salvaged materials, and as to method of providing ingress and egress to private properties, and methods of handling traffic during construction of the entire project.

At the time of the opening of bids each Bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (including all addenda). The failure or omission of any Bidder to examine any form, instrument or document shall in no way relieve any Bidder from any obligation with respect to his bid.

B.4. RECEIPT AND OPENING OF BIDS

Sealed proposals addressed to the City Council of the City of Seguin, Guadalupe County, Texas will be received at the Seguin City Hall, 205 North River, Seguin, Texas 78156, until **2:30 P.M. XXXX, 2014 (CDST)** for the **Countryside 12" Water Main**. Any bid received after closing time will be returned unopened. The bids will be publicly opened and read aloud at the Seguin City Hall at 3:00 p.m.

B.5. BID SECURITY

Each bid must be accompanied by cash, certified check of the Bidder or a bid bond, duly executed by the Bidder as principal and having as surety thereto a surety company approved by the Owner, in the amount of five (5%) percent of the bid. Such cash, checks or bid bonds will be returned to all except the three (3) lowest bidders within ten (10) days after the opening of bids, and the remaining cash, checks or bid bonds will be returned promptly after the Owner and the accepted Bidder have executed the Contract, or if no award has been made within 90 days after the date of the opening of bids, upon demand of the Bidder at any time thereafter, so long as he has not been notified of the acceptance of his bid.

Any cash, check or bid bond is a guarantee that the Bidder will enter into a Contract and execute performance and payment bonds on the forms provided, within ten (10) days after the award of Contract to him. Failure to execute these documents within the required time shall be justification for the Owner to consider this a forfeiture of the security by the Bidder to the Owner.

B.6. QUALIFICATIONS OF BIDDER

The Owner may make such investigations as he deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request.

The Owner may request a list of recent projects of equal difficulty and size that the Bidder has performed. Bidders hereby agree to supply such a list prior to award upon request of the Owner. Quantity or proportionate share of the project to be performed by subcontractors not on the prime contractor's payroll will be considered by the Owner.

The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the work therein.

Bidders may be required to submit evidence that they have a practical knowledge of the particular Work bid upon, and that they have the financial resources to complete the proposed Work.

In determining the Bidder's qualifications, the following factors will be considered: Work previously completed by the Bidder and whether the Bidder (a) maintains a permanent place of business, (b) has adequate personnel and equipment to do the Work properly and

expeditiously, (c) has the financial resources to meet all obligations incidental to the Work, and (d) has appropriate technical experience.

Each Bidder's claim history may be reviewed in the evaluation of the bid. The Bidder may be required to show that he has handled former work so that no just claims are pending against such work. No bid will be accepted from a Bidder who is engaged on any work which would impair his ability to perform or finance his Work.

B.7. TIME OF COMPLETION AND LIQUIDATED DAMAGES

Contractor must agree to commence on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the construction of the project within the number of calendar days proposed on the last sheet of the proposal, or pay as liquidated damages the sum for each consecutive calendar day thereafter as hereinafter provided in the General Information.

B.8. SECURITY FOR FAITHFUL PERFORMANCE

Simultaneously with his delivery of the executed Contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of the Contract and for the payment of all persons performing labor on the project under this Contract and furnishing materials in connection with this Contract, as specified in the General Conditions included herein. The successful Bidder receiving the award of a contract shall furnish a Performance Bond and a Payment Bond each in the amount of 100% of the contract price, with a surety company holding a permit from the State of Texas to act as Surety, as required by the most recent State of Texas requirements, as amended. The Surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner.

B.9. POWER OF ATTORNEY

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

B.10. LAWS AND REGULATIONS

The Bidder's attention is directed to the fact that all applicable State laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though written out in full.

B.11. SUBCONTRACTS

The Bidder is specifically advised that any person, firm or other part to whom it is proposed to award a Contract under this Contract must be acceptable to the Owner and Engineer.

The Bidder shall provide a list of all major subcontractors and vendors with his bid on the forms provided. Failure to provide may constitute a rejection of the bid.

B.12. FINANCING AND PAYMENTS

Payment requests from the contractor to the Owner will be made on a frequency of once a month. Payments will be made to the Contractor by the Owner on the 10th or 25th of each month, depending on receipt of the payment request. The following procedure shall be fulfilled:

1. The Contractor and Inspector or the Engineer will measure and agree to the quantities of materials installed the previous month.
2. Notifications will be made to the Engineer's office by letter or forms as to quantities, stations or percentages completed the previous month. This notification must be in the Engineer's office two (2) weeks before the City payment (26th or 11th of each month).
3. The Engineer will check substantial data for partial payment and prepare a partial payment letter and recommendation to Owner for payment.
4. Upon approval by Owner of submittal data from Engineer, payment will be made on the 10th or 25th of the month.

B.13. METHOD OF AWARD

An award will be made to only one (1) Contractor. The award may be made for the lowest base bid or the lowest base bid including alternate bid item(s), if applicable.

The Owner reserves the right to waive informalities, to reject any or all bids, and to accept the bid most advantageous to the public interest. The right is also reserved to increase or decrease the total proposal amount by 25%, by increasing or decreasing quantities if the total proposal exceeds or is below the funds available. The right is also reserved to eliminate any item(s) in the proposal.

B.14. ENGINEER

The word "Engineer" as used herein refers to TRC Engineers, Inc., 505 East Huntland Drive, Suite 250, Austin, Texas 78752, (512) 454-8716.

B.15. TRAFFIC CONTROL

The Contractor will be responsible for furnishing and using all barricades, warning lights, signs, etc. necessary to protect his work and maintain traffic flow satisfactory **to the Owner and Engineer**. Warning devices shall be as required in the Texas Manual on Uniform Traffic Control Devices. Construction shall be scheduled to cause the least amount of disruption to traffic. All work scheduling shall be coordinated with the City staff, and be approved by the City staff before work can proceed. **No separate payment** will be made for traffic control required to be added to the project to address health and safety issues.

Traffic Control plans and details are not provided in the plans. The Contractor shall be responsible for providing the traffic control plans. All plans shall be sealed by a

professional engineer registered in the State of Texas. The Owner or Engineer may require additional warning devices be installed at any time on the project to address health and safety issues at no additional cost to the Owner.

B.16. OWNERSHIP OF PROJECT

Until final acceptance of the total project by the Owner and Engineer, the Contractor shall take full responsibility for the welfare of the partially completed work. Damage to the Contractor's work from any cause shall be repaired at the Contractor's expense.

B.17. REPLACEMENT OF MISCELLANEOUS IMPROVEMENTS

The Contractor shall repair or replace all existing utilities, water mains, fences, concrete walls, sidewalks, concrete curbs and concrete pavement, signs, culverts, asphalt pavement, building walls and attachments and other miscellaneous improvements damaged by the Contractor due to his operations on this project, to a condition equal to or better than their condition before construction, at no additional expense to the Owner. No direct payment will be made for this item.

B.18. MAINTENANCE GUARANTEE

The Contractor shall maintain and guarantee the work which he does against defective workmanship and materials for a period of one (1) year from the date of final acceptance of the work by the Owner.

Prior to the expiration of the one (1) year warranty period, the City will conduct a thorough inspection of the improvements to verify the integrity of the project. This inspection will include visual examination of the improvements and may include other inspection techniques to verify the integrity of the improvements.

Where defective workmanship and/or materials are discovered, requiring repairs to be made under this guarantee, all such repair work shall be done by the Contractor at his own expense within five (5) days after written notice of such defect has been given to him by the Owner. Should the Contractor fail to repair such defective workmanship and/or materials within five (5) days after being notified, the Owner may make the necessary repairs and charge the Contractor with the actual cost of all labor and materials required.

The Contractor shall arrange to have his faithful performance bond run for a period of one (1) year after the date of final acceptance of the work by the Owner, to cover his guarantee as set forth above.

B.19. CLEAN-UP

The Contractor shall at all times keep the jobsite as free from all material, debris, and rubbish as is practicable and shall remove same from any portion of the job site when it becomes objectionable in the opinion of the Owner and Engineer.

After construction work is completed and before final acceptance of improvements by

Owner, Contractor shall remove all debris from site of project, including all existing debris to an approved place of disposal. Temporary structures, forms, equipment, objectionable rocks, concrete and other debris shall be removed in such manner as to leave the site of work in a neat and presentable condition throughout; and restore in an acceptable manner all property damaged in the progress of this work.

No direct payment will be made for clean-up.

Materials cleared from project shall not be deposited on adjacent public or private property without written permissions of the Owner's thereof filed with Engineer; and any materials so deposited shall be leveled and left in a condition satisfactory to the Owner.

B.20. EXCAVATION

Excavation in this Contract shall be unclassified. There is no separate pay item under this Contract for excavation and its cost shall be included in such pay items as are provided in the Contract and proposal.

B.21. AFFIDAVIT OF BILLS PAID

Upon completion of the project and final acceptance by the Owner and Engineer, the Contractor shall be required to furnish the Owner with an Affidavit and final lien waiver certifying that all suppliers and subcontractors have been paid, before final payment will be made by Owner.

B.22. ADDENDA AND INTERPRETATIONS

No interpretation of the meaning of the plans, specifications or other prebid documents will be made to any bidder orally. Every request for such interpretation should be in writing addressed to TRC Engineers, Inc., 505 East Huntland Drive, Suite 250, Austin, Texas 78752, and to be given consideration must be received at least 14 days prior to the date fixed for the opening of bids.

Any and all such interpretations and supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be mailed to all prospective bidders (at the respective addresses furnished for such purposes), not later than seven (7) days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.

B.23. EXISTING UTILITIES

Existing surface and subsurface structures (gas mains, water mains, sewer mains, storm sewers, telephone cables, sprinkler systems, etc.) are shown on the plans if their location has been determined, but it shall be the responsibility of the Contractor to avoid damaging these existing structures whether or not they are shown on the plans. The Owner and Engineer assume no responsibility for failure to show any or all of these structures on the plans or to show them in their exact location. It is mutually agreed that such failure to

show these structures will not be considered sufficient basis for claims for additional compensation for extra work or for increasing the pay quantities in any manner whatsoever. If any structure is damaged by the Contractor it shall be his responsibility to repair the damage at his own expense and restore the structure to its functional use.

Contractor shall locate and determine (verify if depth is shown on plans) elevation of all existing underground utilities a minimum of 500 feet ahead of trenching. If a utility is found to be in conflict with proposed grades, the Engineer shall be contacted and grades adjusted to avoid conflict. **No separate pay.**

The Contractor shall call the applicable "Call before you dig" hotline for the state in which the project is located to have all underground utilities marked before beginning any excavation or other activity that may conflict with buried structures.

B.24. RECORD DRAWINGS

The Contractor will be furnished one (1) set of plans on which he shall indicate changes made during construction. All notes and comments necessary to give a clear conception of exactly how all items were constructed including location shall be shown. Any changes in location shall be accurately verified by measurement or survey (to be performed at the Contractor's expense). This set of plans shall be reviewed with the Engineer at the completion of the project and returned to the Engineer at that time.

B.25. PRECONSTRUCTION CONFERENCE

After award and execution of a contract between the Owner and Contractor, a formal preconstruction conference will be held in City Hall prior to commencement of the work.

This conference will include review of technical specifications in order to insure clarity as to the type of construction machinery to be used, construction methods to be used, and materials to be used, obligations of both the Contractor and the City forces, personnel, safety, issues/requirements, permitting requirements, payment requests, construction scheduling, surveying, progress meetings, control of the project, guaranty/warranty, and the method of inspection and decision-making to be used during this project.

B.26. BEDDING

The project includes the installation of gravel and/or sand bedding (depending on the location of installation) for the construction of the water mains. The requirement for the bedding method shall be as follows:

Gravel Bedding - An approved gravel bedding material shall be brought up by hand backfilling equally on each side of the pipe and extend from a point six (6") inches below the pipe to a height of 12 inches over the top of the pipe. The initial lift of the gravel bedding material shall be placed on the trench floor and then shaped and compacted mechanically to insure that the sewer pipe is evenly supported along its entire length.

Sand Bedding - An approved sand bedding material shall be brought up by hand backfilling equally on each side of the pipe and extend from a point six (6") inches below

the pipe to a height of 12 inches over the top of the pipe. The initial lift of the sand bedding material shall be placed on the trench floor and then shaped and compacted mechanically to insure that the sewer pipe is evenly supported along its entire length.

B.27. ORDER OF CONSTRUCTION/WORKING HOURS

The Contractor shall submit to the Engineer prior to the preconstruction conference a construction schedule which shall meet the Engineer's approval before construction can begin.

Generally, the Contractor shall perform all construction activities between 8:00 a.m. to 5:00 p.m., Monday through Friday only. However, the Contractor may be allowed to work weekends and holidays upon the Owner's written approval. Contractor shall be responsible for paying all costs, fees, etc. related to Owner representatives during hours on weekends, holidays, and outside 8:00 am to 5:00 p.m. Requests must be received from the Contractor a minimum of 48 hours in advance of work outside that as stated above.

The Contractor shall keep the Owner and the Owner's Engineer informed as to his construction progress. Because of traffic congestion, the contractor may be required to schedule construction in some areas between the hours of 6:00 p.m. and 7:00 a.m. if the City staff or Engineer determines it to be necessary. Contractor will be required to perform work in a fashion that will cause the least amount of inconvenience to the general public.

The Contractor will be required to totally complete portions of the project prior to proceeding with other portions. The Contractor shall submit to the Engineer prior to the preconstruction conference a construction schedule which shall meet the Engineers approval before construction can begin. All work scheduling shall be coordinated with City staff and approved by City staff before work can proceed. The Contractor will be required to have someone on call 24 hours per day during the course of the project.

The following requirements shall apply to all construction areas:

1. All activities shall remain within existing and proposed easements.

B.28. LABOR FORCE

The Contractor may bring his superintendent, foreman, sub-foreman, machine operators, and sufficient key men to round his organization. All other skilled and unskilled labor used on the work when qualified, fit, and available, shall be obtained first from residents within the City where this project is located.

The Contractor shall abide by the Wage and Hour Laws of the State and must not pay less than the rates legally prescribed.

The Contractor shall maintain his superintendent or foreman onsite for the duration of the project. Subcontractor employees shall not be considered the superintendent or foreman onsite.

B.29. CONTRACTOR'S RESPONSIBILITY AND LIABILITY FOR PERFORMANCE OF WORK

It is expressly understood and agreed to by the Contractor that, regardless of the extent of inspection and supervision provided by the Owner and the Engineer, it is the Contractor's responsibility to perform and complete work in accordance with the drawings and specifications, and that the Owner and Engineer have no liability or responsibility whatever to the Contractor for any work performed by the Contractor which is not in accordance with the drawings and specifications regardless of the time when discovered and whether discovered at any time during the course of construction or after acceptance of the work.

The Engineer shall inform the Contractor of any work that is not in accordance with the drawings and specifications when it becomes known to him. If any work is performed which is not in accordance with the drawings and specifications and is not discovered until a later time, neither the Owner nor the Engineer shall have any responsibility to the Contractor, or be liable to the Contractor for the correction or removal of unsatisfactory work or of any work subsequently performed or affected by it. The correction or removal of such unsatisfactory work and the replacement with satisfactory work shall be performed by the Contractor at this own expense, and is understood to be fully included in his contract requirements, without any additional compensation or claims upon the Owner or Engineer.

B.30. NOTIFICATION OF CONSTRUCTION PROGRESS

Contractor shall keep Engineer and Owner fully advised and informed at all times with respect to the progress of the Services and the results obtained there from. Without limitation of the generality of the immediately preceding sentence, Contractor shall furnish verbal reports to Owner as requested but no less than on a weekly basis specifying the days spent and Work accomplished by Contractor since the preceding report; and promptly notify Owner in writing of all accidents, claims (including, without limitation, asserted liens, and other encumbrances), and losses arising out of or in connection with the Services.

The Contractor shall give the Owner and Engineer 48 hours notice for inspection of any subsurface activity.

If work is delayed or behind schedule, the Contractor shall submit additional progress reports at such intervals as the Owner and Engineer may request. Each progress report shall include sufficient description of current and anticipated delaying factors, their effect on the construction schedule, and proposed actions that the Contractor will take to complete the project within the time allotted. If considered necessary, the Owner or Engineer will schedule additional meetings to discuss progress with the Contractor.

B.31. CHANGE OF LOCATION

No change in the alignment is contemplated; however, should a change be necessary, the Owner reserves the right to make such changes; unless it can be clearly shown that such changes would result in an undue hardship on the Contractor, no extra compensation will be allowed the Contractor.

B.32. SEARCHING FOR EXISTING UTILITIES

Existing water mains, sewer mains, storm sewer mains, services, etc. may be difficult to locate. The approximate location of these facilities has been shown on the plans ("EXISTING UTILITIES" above), and City forces with budget constraints have not produced exact locations. The Contractor will be required to excavate and locate these facilities, and to conduct such investigations as necessary to perform the work contemplated on the plans. The Owner will provide liaison with property owners and the limited information it has concerning existing locations, sizes, materials, etc., but any delays or investigations required of the Contractor shall be deemed incidental to the project. **No separate payment will be made.** No machine time will be provided by the Owner in this regard. Service connections will not be located in the field and have not been shown on the plans. It shall be the Contractor's responsibility to verify location of these prior to construction.

B.33. SALVAGE RIGHTS

Old valves, appurtenances of any kind, street paving materials, etc., excavated, removed, or produced during the project by the Contractor shall be delivered to the Owner's yard, if desired by the Owner. No separate payment will be made.

If the Owner desires not to keep these materials, they shall be disposed of properly and according to current laws. The City of Seguin does not have an active landfill.

B.34. DISPOSAL OF EXCAVATED MATERIALS

All excavated materials not used in backfilling will be disposed of by the Contractor at a site obtained by the Contractor and approved by the Owner. Disposal of excavated materials shall be in accordance with all rules and regulations of the Texas Commission on Environmental Quality (TCEQ). Any pieces of material such as broken concrete, asphalt, or pipe measuring 12 inches or larger in any dimension, shall be disposed of by the Contractor at an approved landfill or as directed by the Owner. Spoil areas shall be leveled with a motor grader for future mowing. The Contractor shall include in his bid the cost to dispose of the materials.

All trees, stumps, slashings, brush, or other debris removed from the site as a preliminary to the construction shall be removed from the property and disposed of in a manner approved by the Engineer and Owner.

B.35. SUBMITTAL DATA

Submittal Procedure:

1. The Contractor shall furnish Submittals for any and all such parts of the work and equipment as set forth in the specifications and indicated on the plans. The procedures for review of the submittals shall be as follows:
 - a. The Contractor shall submit to the Engineer for his review, four (4) prints of drawings, plus whatever number of prints the Contractor desires to be returned himself. The submitted prints shall be accompanied by a letter of transmittal, in duplicate of drawings, titles, and other requirements. The letter of transmittal shall be of the form supplied by or approved by the Engineer.
 - b. When a drawing is satisfactory to the Engineer, the number of prints the Contractor desires returned to him will be stamped or marked, "Approved as Corrected" or "Approved as Submitted", will be dated, and will be returned to the Contractor by letter.
 - c. Should a drawing be unsatisfactory to the Engineer, he will stamp thereon "Revise and Resubmit", or "Rejected", and will return one (1) or more copies thereof to the Contractor with the necessary corrections and changes indicated. The Contractor must make such corrections and changes, and again submit at least four (4) prints of the drawings for approval. The Contractor shall revise and resubmit the working drawings, as required by the Engineer, until satisfactory review thereof is obtained.
 - d. The Contractor shall allow sufficient time for preliminary review, correction, and resubmission, and final review of all working (shop) drawings. The Contract should allow not less than 14 days for each review. Drawings of items critical to job progress, when requested in writing by the Contractor, will be given priority review.

Submittal Format:

1. Submittals shall be printed on heavy, first quality paper, 8-1/2" x 11" size with standard 3-hole punching. Drawings and diagrams shall be reduced to 8-1/2" x 11" or 11" x 17".
2. All materials and equipment submitted for review shall meet the following criteria: Each sheet of descriptive literature submitted shall be marked by the Contractor to identify the material or equipment as follows:
 - a. Equipment and materials descriptive literature and drawings shall show the specification paragraph for which the equipment applies, and shall list equipment tag numbers applicable.
 - b. Submittal sheets or drawings showing more than the particular item under consideration shall have crossed out all but the pertinent description of the item for which review is requested.
 - c. Equipment and materials descriptive literature not readily cross referenced

with the drawings or specifications shall be identified by a suitable notation.

Submittal Content:

1. The submittals shall show that all requirements of the specification section have been met. The submittals shall contain the following information as applicable:
 - a. Equipment, function, normal operating characteristics, and limiting conditions.
 - b. Assembly, installation, alignment, adjustment, and checking instructions.
 - c. Outline, cross-section, and assembly drawings; engineering data; and wiring diagrams.
 - d. Test data and performance curves, where applicable.
 - e. The operational and maintenance manual for the equipment item and/or system as designated in Table 1 below, or as required elsewhere within these specifications shall be submitted.

TABLE 1. SUBMITTAL AND O & M SUMMARY

Item Description	Submittal Required	O&M Manual Required	Working Drawing Required	O&M Instructions Required
Valves	X	X		X
Bedding/Backfill Materials	X			
Hydromulch	X			
Casing/Spacers	X			
Cast-In-Place Concrete	X			
Piping (Water)	X			
Trench Safety Plan	X			
Tracer Wire	X			
Fire Hydrants	X			
Fittings	X			
NOI and SW3P	X			
Record Site Photographs and Video Prior to Construction	X			

- f. Working Drawings:
 - i. Items for which workings drawings are required, include but are not limited to, the non-equipment items listed in Table 1, and as set forth elsewhere within these specifications.
 - ii. The drawings shall be numbered consecutively and shall accurately and distinctly present the following:
 - a). All working and erection dimensions.
 - b). Arrangement and sectional views.

- c). Necessary details, including complete information for making connections between functional parts.
 - d). Kinds of materials and finishes.
 - e). Parts list and description thereof.
- iii. Each drawing shall be dated and shall bear the name of the project, names of equipment or materials, and the location where the equipment or materials are to be installed in the project. The Engineer may decline to consider any working drawings, which do not contain complete data on the work and full information on related matters.
- iv. If working drawings show departures from the contract requirements, the Contractor shall make specific mention thereof in a letter attached to the submittal form; otherwise, review of such submittals will not constitute acceptance of the departure.
- v. No Work called for by working drawings shall be initiated until the said drawings have been accepted by the Engineer.

B.36. SANITARY FACILITIES

The Contractor shall provide sufficient chemical toilet facilities for the use of his forces. Adequacy of these facilities will be subject to the approval of the Engineer and maintenance of same must be satisfactory to the Engineer at all times. Contractor shall provide a maintenance schedule to the Owner for approval.

B.37. WITHDRAWAL OF BIDS

Contractors may withdraw their bid at any time until the specified closing time for acceptance of bids. After the specified time, no bid may be withdrawn for a period of 90 days or until a contract is awarded, whichever occurs first.

B.38. SUB-SURFACE CONDITIONS

It shall be the responsibility of the Contractor to satisfy himself as to the soil conditions and nature and type of geological formations in and through which this project will be constructed, and to make appropriate allowances in the proposal he submits for doing the work. Such information as may be obtained from the test borings and accompanying notations shown on the plans is merely for the guidance of the Contractor and is not to be construed in any manner as a guarantee by the Owner that such conditions of sub-surface strata are infallible.

B.39. STAKING FOR CONSTRUCTION

The Contractor will provide all construction staking services for the project. The cost of these services will be reflected in the unit price amount bid in the proposal. **No separate payment will be made.**

Sherwood Surveying, LLC provided topographical surveying services for the design portion of this project. Information to the Contractor for construction staking may be available from Sherwood Surveying, LLC.

Mr. David L. Ellis, R.P.L.S.
Sherwood Surveying, LLC
6477 FM 311
Spring Branch, TX 78070
Phone: 830-228-5446
Fax: 830-885-2170

B.40. BID PROPOSALS

Bidders are requested to submit bids on all bid items as listed in the Proposal, so that an adequate evaluation of the total project can be made.

The Owner reserves the right to reject any or all bids, or to accept the bid or combination of bids that they deem most advantageous to the public interest. Generally, contracts will be awarded on the basis of the lowest and best bid for each proposal.

Bidders must submit their bids based on the design as set forth in the plans and specifications. Any bids submitted on the basis of unspecified alternate designs will be immediately rejected and returned to the bidder.

The prices bid in the Proposal shall be full compensation for furnishing all material, labor, equipment, and performing all operations required to complete the project ready for use. All materials, labor, equipment, and work required to complete the project ready for use, must be included in the price bid for the various items provided in the Proposal and no other compensation will be allowed.

Prices in the proposal shall be stated in both script and numerals.

B.41. CONTRACT DRAWINGS AND SPECIFICATIONS:

All items shown on the drawings or included in the specifications shall be furnished, installed, and connected with accessories and appurtenances as shown or indicated on the plans and in the specifications.

Any work or item called for on the drawings and not particularly mentioned in the specifications, or work and items described in the specifications and not shown on the drawings is to be regarded as included under the contract the same as if set forth in the specifications and exhibited on the drawings.

B.42. SETTLEMENT OF INSURANCE CLAIMS

Losses insured under policies that include Owner/Engineer as a named insured shall be adjusted with Owner/Engineer and made payable to Owner/Engineer as trustee for the insureds, as their interests may appear.

Owner/Engineer and Contractor waive all rights against each other for damages caused by fire or other perils to the extent covered by insurance, except such rights as they may have to insurance proceeds held by owner as trustee. Contractor shall require similar waivers by Subcontractors as provided in General Conditions.

B.43. SPECIFICATIONS

The Specifications which govern materials and equipment to be furnished and the work to be performed under this contract are listed in the Table of Contents at the beginning of this volume.

B.44. PAYMENT

Contractor can make monthly payment requests with retainage withheld until the project is accepted. Retainage shall be ten (10%) percent.

B.45. EXCAVATION, TRENCHING, AND SHORING

All excavation, trenching, and shoring shall conform to the U.S. Department of Labor, Occupational Safety, and Health Administration Guidelines (Subpart P - Excavation, Trenching, and Shoring). The Contractor will be required to submit an excavation, trenching, and shoring plan to the Engineer for approval prior to construction. See Section ETS of these specifications.

B.46. BUY AMERICAN

In accordance with the Buy American provision in Public Law 95-117 (section 215 of Public Law 92-500 as amended) the Contractor agrees that preference will be given to domestic material, by the contractor, subcontractors, materialmen, and suppliers and Owner in the performance of this contract.

B.47. WAGE SCALE

All employees of the Contractor on this project shall be paid, at least, the amount shown in the wage decision attached herein.

B.48. BACKFILL AND PAVEMENT REPAIR

Separate payment **WILL NOT** be made for repair of gravel surfaces crossed or damaged by the Contractor's work. However, separate payment **WILL** be made for asphaltic (or concrete) pavement repair as bid in the proposal and shown on the plans.

B.49. NO SEPARATE PAYMENT

Several notes on the plans indicate work to be performed with "No Separate Payment". Contractor shall include the cost of this work in other bid items provided.

B.50. SPOIL DISPOSAL

The Contractor's bid shall include spoil disposal (offsite) in accordance with applicable TCEQ regulations.

B.51. INGRESS/EGRESS

Ingress/Egress to the construction area by the Contractor shall be done only on the construction easements shown on the plans or as approved by the Engineer, no exceptions. No separate payment will be provided for these services.

B.52. MATERIALS FOR WATER MAIN CONSTRUCTION

Pipe for PVC water main construction, unless otherwise shown on the plans, shall be polyvinyl chloride pipe, meeting the requirements of AWWA C-900. Pipe shall be blue in color (other colors not acceptable). Pipe joints shall be rubber ring type gasket in an integrated thickened bell. All other fittings 12" and smaller shall be short body ductile iron.

All pipe, fittings, and valves shall be new. All water pipe shall be approved by the Underwriters laboratories for fire protection, approved by the National Sanitation Foundation and installed according to manufacturer's specifications and Section W - WATER MAIN CONSTRUCTION of these specifications.

All fittings and valves for WATER MAIN CONSTRUCTION shall be mechanical joint or as specified on the plans.

B.53. COOPERATION AND COORDINATION WITH PUBLIC

The Contractor shall conduct his work so as to cause the least amount of disruption to the public. Closing of any streets or lanes of traffic will be coordinated with City staff. All citizens along each street will be notified by the Contractor in advance of construction activities.

B.54. VIDEO OF CONSTRUCTION AREA

The Contractor shall provide the City with a video tape showing the construction area in detail prior to construction, to include audio to describe locations.

B.55. WATER MAIN – RESTRAINED JOINTS

All fittings for the proposed water main projects shall include meg-a-lug restrained joints. This shall include valves and fire hydrants.

B.56. WATER LINE DISINFECTION

The Contractor's unit price bid costs shall include the services of a certified laboratory to perform the "Bac-T" tests for the newly installed water mains/services. The sample shall

be acquired by a direct employee of the lab. Samples acquired by the Contractor will not be acceptable. Sampling and testing shall meet all requirements of TCEQ. The City inspector will be notified of when the sample will be acquired. The Contractor shall submit the name of the laboratory to the Engineer for approval. There will be no separate pay for these services.

B.57. ABANDONMENT OF EXISTING WATER LINES

This project will parallel several existing water lines. It will be the Contractor's responsibility to take these existing water lines out of service, whether or not the lines to be abandoned are indicated on the plans. The Contractor shall plug the existing lines to be abandoned with an approved fitting. This work shall be deemed incidental to the project. No separate payment will be made.

B.58. EXCAVATION

Excavation as such in this contract is not a separate pay item. No classification of excavation material will be made.

B.59. SCHEDULE

The Contractor shall submit to the Engineer and Owner a construction schedule on the first day of each month for the duration of the project. Schedule shall include but not be limited to remaining activities, anticipated start/finish time, etc.

B.60. PUMPING, BAILING AND DRAINING

The Contractor shall immediately remove all surface or seepage water from sewers, drains, ditches, and other sources which may accumulate during the excavation and construction work by providing the necessary underdrains or otherwise and by doing the necessary pumping, bailing or draining. The Contractor shall have available at all times sufficient equipment in proper working order for doing the work herein required. All water removed from excavations shall be disposed of in an approved manner so as to not create unsanitary conditions nor to interfere unduly with the use of streets, private driveways, or entrances. Pumping, bailing, draining, underdrains, ditches, etc., shall be considered as incidental work and will not be paid for as separate items, but their cost shall be included in the contract prices bid in the Proposal for the various units of excavation measure.

B.61. GEOTECHNICAL DATA

There is no Geotechnical Report for this project. Each Contractor shall make his own interpretation of the character and condition of the materials which will be encountered. Each The Contractor may, at his own expense, make surveys and investigations as he may deem necessary to determine conditions which will affect performance of the Work.

B.62 TIME ALLOWED FOR COMPLETION

The time allotted for the completion of all items of work shall be **90 calendar days**. The Work Order shall consist of a written request by the Engineer for the Contractor to proceed with the construction of the project.

Under a Calendar Day Contract, Contractor may also be granted an extension of time because of unusual inclement weather which is beyond the normal weather recorded and expected for Seguin, Texas. Normal rainfall compiled by the State climatologist, based on U.S. Weather Bureau Records for Seguin, Texas, is considered a part of the Calendar Day Contract, and is not a justification for an extension of time. Listed as follows are the mean number of days in which there occurred 0.10 inch or more of precipitation:

January.....	4 days
February.....	3 days
March.....	4 days
April.....	3 days
May.....	5 days
June.....	5 days
July.....	3 days
August.....	3 days
September.....	4 days
October.....	5 days
November.....	3 days
December.....	3 days

Rain days per month in amounts exceeding the number of days shown above may be credited as a Rain Day if a Claim is made in accordance with the general conditions and meets the following definition: a "Rain Day" is any day in which a rain event occurs at the site and is sufficient to prevent Contractor from performing units of Work critical to maintaining the project schedule.

B.63. BARRICADES AND DANGER SIGNALS

Where the work is carried on, in or adjacent to any street, alley, or public place, the Contractor shall, at his own cost and expense, furnish and erect barricades and/or fences, lights and/or danger signals, and take any other steps necessary, for the protection of persons or property. Barricades shall be painted with a reflectorized paint or scotchlite tape. From sunset to sunrise, the Contractor shall furnish and maintain lights at each barricade. Barricades shall be erected to endeavor to keep vehicles from being driven on or into any work under construction.

The Contractor will be held responsible for all damage to the work due to the failure of barricades, signs, lights, and watchmen to protect it, and whenever evidence is found of such damage, the Engineer may order the damaged portion immediately removed and replaced by the Contractor at his cost and expense. The Contractor's responsibility for the maintenance of barricades, signs, and lights and for providing watchmen shall not cease until the project has been accepted by the Engineer.

The Contractor shall meet all applicable local, state, and federal regulations for barricades and danger signals.

B.64. SAFETY

Contractor shall place the highest priority on health and safety, and shall maintain a safe working environment during performance of the Work. The site shall be considered to be drug and alcohol free and such policy will be strictly enforced. All employees shall adhere to these policies while on site. Contractor shall comply, and shall secure compliance by its employees, agents, and lower-tier Contractor's, with all applicable health, safety, and security laws and regulations including, without limitation, federal, state and local laws and regulations, any health and safety plans issued by the Engineer as well as all policies and regulations of the Owner. Compliance with such requirements shall represent the minimum standard required of Contractor. Contractor will be performing Work on the Owner's property.

At all times, the Contractor shall provide an on-site construction supervisor. The Contractor's construction supervisor shall hold and document safety meetings.

Contractor agrees to furnish protective devices and clothing as required by applicable laws, regulations, health and safety plans and Owner rules and regulations, and to ensure that such devices or clothing are properly used by its employees, agents, lower-tier Contractors and other invitees of Contractor at the jobsite. Safety protection is required at all times while working onsite including a hardhat and a high visibility, tear-off reflective vest.

B.65. PROJECT MAINTENANCE

The Contractor shall maintain and keep in good repair the improvements covered by these plans and specifications during the life of his contract. Existing improvements shall at all times be protected by the Contractor during the construction of the work as specified herein. All such improvements shall be left in a condition equal to that prior to start of construction.

B.66. PROPERTY LINES AND MONUMENTS

The Contractor shall protect all property corner markers, and when any such markers or monuments are in danger of being disturbed, they shall be properly referenced and if disturbed, shall be reset at the expense of the Contractor.

B.67. OFF-SITE STORAGE

Off-site storage for any materials and equipment not incorporated into the Work but included in the Applications for Payment shall not be allowed.

B.68. NOTICES TO OWNERS AND AUTHORITIES

Utilities and other concerned agencies shall be notified at least 48 hours prior to excavating near underground utilities or pole lines or in accordance with the utilities', Texas Digger's Hotline (811), and concerned agencies' regulations.

B.69. CONNECTIONS TO EXISTING FACILITIES

Unless otherwise specified or indicated, the Contractor shall make all necessary connections to existing facilities, including structures, drain lines, and utilities such as water, sewer, gas, telephone and electric. The Contractor shall give the Owner or owning utility written notice seven (7) days in advance of making all connections. In each case, the Contractor shall receive written permission from the Owner or the owning utility prior to undertaking connections. The Contractor shall protect facilities against deleterious substances and damage.

Connections to existing facilities which are in service shall be thoroughly planned in advance, and all required equipment, materials, and labor shall be on hand at the time of undertaking the connections. Work shall proceed continuously (around the clock) if necessary to complete connections in the minimum time. Operation of valves or other appurtenances on existing utilities, when required, shall be by or under the direct supervision of the owning utility.

B.70. CONNECTIONS TO EXISTING PIPELINES

All connections to existing piping shall be made using joints and/or fittings suitable for the conditions encountered. The Contractor shall field-verify the location, pipe material, and connection requirements of all existing pipe before ordering any new piping to be installed under this contract.

B.71. UNFAVORABLE CONSTRUCTION CONDITIONS

During unfavorable weather, wet ground, or other unsuitable conditions, the Contractor shall confine its operations to work which will not be affected adversely by such conditions. No portion of the Work shall be constructed under conditions which would affect adversely the quality or efficiency thereof, unless special means or precautions are taken by the Contractor to perform the Work in a proper and satisfactory manner. Contractor shall ensure all roadways are able to be traversed by vehicular traffic during such times.

B.72. DEWATERING

The Contractor shall at his own expense remove any water that may be encountered during the course of the work, by pumping, well pointing, or other approved methods. The water shall be stored in a storage tank provided by the Contractor and disposed of in accordance with all applicable State rules and regulations. Newly placed concrete or grout shall be adequately protected from possible injury resulting from groundwater or from handling and disposal of water.

All surface drainage or natural waterways shall be controlled by dikes or ditches without damage to adjacent property or structures and without interference with the right of either public or private owner's.

No separate payment will be made for dewatering.

B.73. EXISTING STRUCTURES/EQUIPMENT

Exact dimensions of existing structures, buildings, equipment roads, utility locations, etc. shown on the plans have not been field verified by the Engineer. Prior to submittal preparation by the Contractor, or construction activities as applicable, all dimensions of these existing items shall be verified by the Contractor in the field. It shall be the Contractor's responsibility, to field verify all field dimensions.

SEGUIN, TEXAS
COUNTRYSIDE 12" WATER MAIN

DATE: _____

Gentlemen:

Having carefully examined the Instructions to Bidders, the General Conditions of the Contract, and Detailed Plans and Specifications, the undersigned Bidder hereby proposes to do all the work and furnish all necessary superintendence, labor, machinery, equipment, tools and materials, and to complete all the work this refers to, for the construction of all items listed at the prices shown for each item on the following bid schedule.

The bid schedule attached lists the various divisions of construction contemplated in the Plans and Specifications. Bid prices must be shown in Words and Figures for each item listed in the Proposal, and in the event of a discrepancy, the words shall control.

Receipt is hereby acknowledged of the following addenda to the Contract Documents:

Addendum No. 1 dated _____ Received _____

Addendum No. 2 dated _____ Received _____

Addendum No. 3 dated _____ Received _____

All the various phases of work enumerated in the detailed specifications with their individual jobs and overhead, whether specifically mentioned, included by implication or appurtenant thereto, are to be performed by the Contractor under one of the items listed in the bid schedule, irrespective of whether it is named in said list.

Bidder agrees to perform all of the work listed in the proposal and as described in the specifications and shown on the plans, for the following unit prices:

PROPOSAL
COUNTRYSIDE 12" WATER MAIN

Item No.	No. of Units	Unit	Item and Unit Price (Fill in Words and Figures)	Total Amount
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For furnishing all labor, materials, equipment and superintendence for the proposed new water mains and services:

P.1. 3,967 L.F. For furnishing and installing 12" DR 18 C-900 PVC water main, including mandatory gravel or sand bedding (as detailed), mechanical compaction and backfill, complete in place, for the sum of

_____ Dollars
 _____ Cents

(\$), per Linear Foot \$ _____

P.2. 7 L.F. For furnishing and installing 8" DR 18 C-900 PVC water main, including mandatory gravel or sand bedding (as detailed), mechanical compaction and backfill, complete in place, for the sum of

_____ Dollars
 _____ Cents

(\$), per Linear Foot \$ _____

PROPOSAL
COUNTRYSIDE 12" WATER MAIN

Item No.	No. of Units	Unit	Item and Unit Price (Fill in Words and Figures)	Total Amount
P.3.	65	L.F.	For furnishing and installing 6" DR 18 C-900 PVC water main, including mandatory gravel or sand bedding (as detailed), mechanical <u>compaction</u> and backfill, complete in place, for the sum of	

			_____ Dollars	
			_____ Cents	
			(\$ _____), per Linear Foot	\$ _____
P.4.	45	L.F.	For furnishing and installing 24" O.D. x 3/8" wall smooth steel casing by BORE including 12" SDR 26 PVC (ASTM D-3034) carrier pipe, complete in place, for the sum of	

			_____ Dollars	
			_____ Cents	
			(\$ _____), per Linear Foot	\$ _____
P.5.	7	EA.	For furnishing and installing 12" AWWA C515 Resilient Seat Gate Valves to include <u>meg-a-lug glands</u> , complete in place, for the sum of	

			_____ Dollars	
			_____ Cents	
			(\$ _____), per Each	\$ _____

PROPOSAL
COUNTRYSIDE 12" WATER MAIN

Item No.	No. of Units	Unit	Item and Unit Price (Fill in Words and Figures)	Total Amount
P.6.	1	EA.	For furnishing and installing 8" AWWA C515 Resilient Seat Gate Valves to include <u>meg-a-lug glands</u> , complete in place, for the sum of	

			_____ Dollars	
			_____ Cents	
			(\$), per Each	\$ _____
P.7.	5	EA.	For furnishing and installing 6" AWWA C515 Resilient Seat Gate Valves to include <u>meg-a-lug glands</u> , complete in place, for the sum of	

			_____ Dollars	
			_____ Cents	
			(\$), per Each	\$ _____
P.8.	5.75	Ton	For furnishing and installing ductile iron compact main line fittings for the proposed water lines to include <u>meg-a-lug glands</u> , complete in place, for the sum of	

			_____ Dollars	
			_____ Cents	
			(\$), per Ton	\$ _____

PROPOSAL
COUNTRYSIDE 12" WATER MAIN

Item No.	No. of Units	Unit	Item and Unit Price (Fill in Words and Figures)	Total Amount
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P.9.	3	EA.	For furnishing and installing 3/4" service connections to the existing water meter (or empty lot) as detailed on the plans, compacted backfill to match water main construction, at locations shown on the plans or directed by owner representative, complete in place, for the sum of	
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_____ Dollars
_____ Cents

(\$ _____), per Each \$ _____

P.10.	1	EA.	For furnishing all materials, labor and equipment for connection of the proposed water main to the existing 12" water main, at locations shown as shown on the Plans, complete in place, for the sum of	
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_____ Dollars
_____ Cents

(\$ _____), per Each \$ _____

P.11.	4	EA.	For furnishing all materials, labor and equipment for connection of the proposed water main to the existing 8" water main, at locations shown as shown on the Plans, complete in place, for the sum of	
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_____ Dollars
_____ Cents

(\$ _____), per Each \$ _____

PROPOSAL
COUNTRYSIDE 12" WATER MAIN

Item No.	No. of Units	Unit	Item and Unit Price (Fill in Words and Figures)	Total Amount
P.12.	1	EA.	For furnishing all materials, labor and equipment for connection of the proposed water main to the existing fire hydrant, at locations shown as shown on the Plans, complete in place, for the sum of	

			_____ Dollars	
			_____ Cents	
			(\$), per Each	\$ _____
P.13.	5	EA.	For furnishing and installing new Fire Hydrant Assemblies to include fire hydrant, bury and concrete blocking and <u>meg-a-lug glands</u> , at locations shown as shown on the Plans, complete in place, for the sum of	

			_____ Dollars	
			_____ Cents	
			(\$), per Each	\$ _____
P.14.	4,039	L.F.	For furnishing and installing OSHA required trench excavation protection on all waterlines, complete in place, for the sum of	

			_____ Dollars	
			_____ Cents	
			(\$), per Linear Foot	\$ _____

PROPOSAL
COUNTRYSIDE 12" WATER MAIN

Item No.	No. of Units	Unit	Item and Unit Price (Fill in Words and Figures)	Total Amount
P.15.	4,039	L.F.	For furnishing all labor, materials and equipment for the inductive tracer detection wire for the water mains, complete in place, for the sum of _____ _____ Dollars _____ Cents (\$), per Linear Foot \$ _____	
P.16.	1,404	L.F.	For furnishing all material, labor, and equipment for pavement repair over water line trench (regardless of trench width), including compaction, 12" (minimum depth) crushed limestone base, and 2" Type D HMAc, in order to restore them to their original condition, complete in place, as per the details, for the sum of _____ _____ Dollars _____ Cents (\$), per Linear Feet \$ _____	
P.17.	50	L.F.	For furnishing all material, labor and equipment to remove and replace (to match existing) concrete curb and gutter with steel reinforcing, including excavation and spoil disposal, subgrade compaction, compacted base material, complete in place, for the sum of _____ _____ Dollars _____ Cents (\$), per Linear Foot \$ _____	

PROPOSAL
COUNTRYSIDE 12" WATER MAIN

Item No.	No. of Units	Unit	Item and Unit Price (Fill in Words and Figures)	Total Amount
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P.18.	7,858	S.Y	For furnishing and installing seeding (hydro-mulching) Bermuda grass, for erosion control, as detailed and directed, at locations shown on the Plans, complete in place, for the sum of	
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_____ Dollars

_____ Cents

(\$ _____), per Square Yard \$ _____

P.19.	1	L.S.	For furnishing all labor, materials, supervision and equipment necessary to provide complete topographical survey information of the site improvements as listed (valves, service connections, and fire hydrants) and provide as-built drawings for all new structures and changes made during construction, for the sum of	
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_____ Dollars

_____ Cents

(\$ _____), per Lump Sum \$ _____

PROPOSAL
COUNTRYSIDE 12" WATER MAIN

Item No.	No. of Units	Unit	Item and Unit Price (Fill in Words and Figures)	Total Amount
----------	--------------	------	---	--------------

P.20.	1	L.S.	For preparation and maintenance of Storm Water Pollution Prevention Plan (SWP3) including all reports and records, all pollution control devices and measures necessary to maintain and complete the SWP3 plan that are not a separate bid item (including installation, maintenance and removal of such items as required), costs for the Contractor's Notice of Intent application fee costs for the annual Water Quality fee, Costs for personnel to inspect the SWP3's protective measures, costs for all pollution control measures that may be required outside the right-of-way or easement area such as construction staging areas, preparation and submittal of Notice of Termination, submittal of Notice of Change letter (if required), and all other requirements found in the TPDES General Permit No. TXR 150000, for the sum of	
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_____ Dollars
 _____ Cents

(\$ _____), per Lump Sum \$ _____

TOTAL PROPOSAL

(Summation of Items P.1. thru P.20.)

\$ _____

The above prices shall include all labor, materials, overhead, profit, insurance, etc. to cover the finished work of the several kinds called for.

The work proposed to be done shall be accepted when fully completed and finished in accordance with the plans and specifications to the satisfaction of the Engineer.

The undersigned Bidder hereby declares that he has visited the site of the work and has carefully examined the contract documents pertaining to the work covered in the above bid, and that the bid prices contained in the proposal have been carefully checked and are submitted as correct and final.

The Contractor agrees to complete the project on which he has bid, as specified and shown on the plans, within 90 consecutive calendar days as provided in the General Conditions of the Agreement.

EXPERIENCE RECORD

The Contractor shall list in the spaces provided below, similar projects of equal or greater dollar amount that have been installed and are in operation within the past five (5) years. Separate sheets may be attached.

No.	Location	Description (Size, Type, Length)	Contact Person Phone Number	Date of Installation
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

Name of Bidder: _____ Date Organized: _____

Address: _____ Date Incorporated: _____

Federal ID Number: _____

Number of years in contracting business under present name: _____

List Names of Owners, Partners, or shareholders: _____

Contracts on hand:

<u>Contract</u>	<u>Amount</u>	<u>Anticipated Completion Date</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Type of work performed by your company: _____

Have you ever failed to complete any work awarded to you? _____

Have you ever defaulted on a contract? _____

List the more important projects recently completed by your firm (be sure to include project of similar importance):

<u>Project</u>	<u>Amount</u>	<u>Month / Year Completed</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Major equipment available for this contract:

Credit Available: \$ _____

Bank reference and bank officer: _____

The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the _____ in verification of the recitals comprising this Statement of Bidder's Qualifications.

Executed this _____ day of _____, 2014

By: _____

Title: _____

The Owner reserves the right to delete any bid items or portions thereof. If the Owner elects to delete any portions of the PROJECT from the contract, then the contract can be awarded on that basis.

The undersigned Bidder hereby declares that he has visited the site of the work and has carefully examined the Contract Documents pertaining to the work covered by the above bid. Upon issuance of notice to proceed, a mutually agreed upon start date will be determined.

Enclosed with this proposal is a Certified Check for:

_____ Dollars(\$_____)
or a Proposal(Bid) Bond in the sum of:

5% of Bid Amount _____ Dollars(\$ 5% of Bid Amount)

which it is agreed shall be collected and retained by the Owner as liquidated damages in the event this proposal is accepted by the Owner within ninety (90) days after bids are received and the undersigned fails to execute the contract and the required bond for the Owner within fifteen (15) days after the date said proposal is accepted, otherwise said check or bond shall be returned to the undersigned upon request.

_____(Contractor)

By: _____
Printed Name

Signature

Title: _____

Date: _____

Address: _____

City State Zip

Telephone Number: _____

Fax Number: _____

STANDARD FORM OF AGREEMENT

STATE OF TEXAS §
 §
COUNTY OF GUADALUPE §

THIS AGREEMENT, made and entered into this ____ day of _____ A.D. 2014, by and between the City of Seguin, a municipal corporation, of the County of Guadalupe and State of Texas, acting through _____ thereunto duly authorized so to do, Party of the First Part, hereinafter termed OWNER, and _____ of the City of _____, County of _____, and State of _____, Party of the Second Part, hereinafter termed CONTRACTOR.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the OWNER, and under the conditions expressed in the bond bearing even date herewith, the said CONTRACTOR hereby agrees with the said OWNER to commence and complete the construction of certain improvements generally described as follows:

COUNTRYSIDE 12" WATER MAIN

and all extra work in connection therewith, under the terms as stated in the General Conditions of the Agreement and at his (or their) own proper cost and expenses to furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said construction, in accordance with the conditions and prices stated in the Proposal attached hereto, and in accordance with the Advertisement for Proposals, General and Special Conditions of Agreement, Plans and other drawings and printed or written explanatory matter thereof, and the Specifications and addenda therefore, as prepared by TRC Engineers, Inc., 505 East Huntland Drive, Suite 250, Austin, Texas 78752, herein entitled the ENGINEER, each of which has been identified by the CONTRACTOR and the ENGINEER, together with the CONTRACTOR'S written Proposal, and the Performance and Payment Bonds hereto attached; all of which are made a part hereof and collectively evidence and constitute the entire contract (hereinafter collectively called the "Contract Documents" or the "Contract").

The CONTRACTOR hereby agrees to commence work within ten (10) days after the date written notice to do so shall have been given to him, and to substantially complete the same within 90 calendar days after the written notice to commence work, subject to such extensions of time as are provided by the General and Special Conditions.

The OWNER agrees to pay the CONTRACTOR in current funds the price or prices shown in the Proposal, which forms a part of this contract, such payments to be subject to the General and Special Conditions of the contract.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in the year and day first above written.

City of Seguin, Texas

Party of the First Part
(OWNER)

Party of the Second Part
(CONTRACTOR)

By: _____
Douglas G. Faseler, City Manager

By: _____

ATTEST:

ATTEST:

Print Name: _____

Print Name: _____

Executed ____ originals

(seal)

(seal)

PERFORMANCE BOND

STATE OF TEXAS §
 §
COUNTY OF GUADALUPE §

We, _____ of _____, as Principal, and _____, as Surety, are held and firmly bound unto the City of Seguin, Texas, as Owner, in the penal sum of _____ dollars (\$) for the payment of which the Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, by this bond.

The Principal has entered into a Contract with the Owner dated _____, 2014 for the Countryside 12" Water Main, which is fully incorporated into this bond by reference.

The condition of this obligation is that if the Principal faithfully and promptly performs all work for the Project in accordance with the Contract Documents, and faithfully and promptly observes and performs all of its covenants, conditions, duties and obligations under the Contract Documents according to their true intent and meaning, then this obligation will be satisfied; otherwise it will remain in full force and effect.

If the Owner declares the Principal to be in default under the Contract, the Surety agrees to either 1) promptly remedy the default, or 2) faithfully and promptly perform and complete the Project in accordance with the Contract Documents.

The Surety, for value received, agrees that no modification, change order, extension of time, amendment or addition to the Contract, or to the plans, specifications, drawings or other Contract Documents, will in any way affect the Surety's obligation on this bond, and the Surety waives notice of any such modification, change order, extension of time, amendment or addition.

The Surety certifies that it is authorized and admitted to write surety bonds in Texas. If this bond exceeds \$100,000.00 the surety certifies that it either 1) holds a certificate of authority from the United States Secretary of the Treasury to qualify as a surety on obligations permitted or required under federal law, or 2) has obtained qualified reinsurance for any liability in excess of \$100,000.00 from a reinsurer that is authorized and admitted as a reinsurer in the State of Texas, and is the holder of a certificate of authority from the United States Secretary of the Treasury to qualify as a surety or reinsurer on obligations permitted or required under federal law. This bond is governed by Chapter 2253 of the Texas Government Code, and it is provided solely for the protection of the Owner.

This bond is filed with the Owner in Guadalupe County, Texas, and the Principal and Surety agree that mandatory venue for any legal action filed upon this bond is in the District Courts of Guadalupe County, Texas.

Executed and sealed by the Principal and Surety on_____.

Principal

Surety

By:_____

By:_____

Title:_____

Title:_____

Address:_____

Address:_____

Telephone Number:_____

Telephone Number:_____

Facsimile Number:_____

(SEAL)

(SEAL)

The name and address of the Resident Agent of the Surety is:

THIS BOND MUST BE ISSUED AFTER EXECUTION OF OWNER-CONTRACTOR AGREEMENT BY BOTH PARTIES. ATTACH ORIGINAL POWER OF ATTORNEY FOR THE SURETY'S REPRESENTATIVE TO THIS BOND.

THE ADDRESS OF THE SURETY COMPANY TO WHICH ANY NOTICE OF CLAIM SHOULD BE SENT MAY BE OBTAINED FROM THE TEXAS DEPARTMENT OF INSURANCE BY CALLING 1-800-252-3439.

PAYMENT BOND

STATE OF TEXAS §
 §
COUNTY OF GUADALUPE §

We, _____ of _____, as Principal, and _____, as Surety, are held and firmly bound unto the City of Seguin, Texas, as Owner, in the penal sum of _____ dollars (\$) for the payment of which the Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, by this bond.

The Principal has entered into a Contract with the Owner dated _____, 2014 for the Countryside 12" Water Main, which is fully incorporated into this bond by reference.

The condition of this obligation is that if the Principal pays all persons who supply public work labor or material for the Project, then this obligation will be satisfied; otherwise this bond will remain in full force and effect.

This bond is provided under the provisions of Chapter 2253 of the Texas Government Code, as amended and all liabilities on this bond shall be determined in accordance with the provisions of that statute to the same extent as if it were copied at length in this document.

The Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or the plans, specifications, drawings or other Contract Documents, or to the work performed under the Contract Documents, shall in any way affect its obligation on this bond, and the Surety waives notice of any such change, extension of time, alteration or addition.

The Surety certifies that it is authorized and admitted to write surety bonds in Texas. If this bond exceeds \$100,000.00 the surety certifies that it either 1) holds a certificate of authority from the United States Secretary of the Treasury to qualify as a surety on obligations permitted or required under federal law, or 2) has obtained qualified reinsurance for any liability in excess of \$100,000.00 from a reinsurer that is authorized and admitted as a reinsurer in the State of Texas, and is the holder of a certificate of authority from the United States Secretary of the Treasury to qualify as a surety or reinsurer on obligations permitted or required under federal law. This bond is governed by Chapter 2253 of the Texas Government Code, and it is provided solely for the protection of the Owner.

Mandatory venue for any legal action filed upon this bond is in the District Courts of Guadalupe County, Texas.

Executed and sealed by the Principal and Surety on_____.

Principal

Surety

By:_____

By:_____

Title:_____

Title:_____

Address:_____

Address:_____

Telephone Number:_____

Telephone Number:_____

Facsimile Number:_____

(SEAL)

(SEAL)

The name and address of the Resident Agent of the Surety is:

THIS BOND MUST BE ISSUED AFTER EXECUTION OF OWNER-CONTRACTOR AGREEMENT BY BOTH PARTIES. ATTACH ORIGINAL POWER OF ATTORNEY FOR THE SURETY'S REPRESENTATIVE TO THIS BOND.

THE ADDRESS OF THE SURETY COMPANY TO WHICH ANY NOTICE OF CLAIM SHOULD BE SENT MAY BE OBTAINED FROM THE TEXAS DEPARTMENT OF INSURANCE BY CALLING 1-800-252-3439.

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GENERAL CONDITIONS OF AGREEMENT

10/2013

1. DEFINITIONS OF TERMS

1.01 OWNER, CONTRACTOR AND ENGINEER. The OWNER, the CONTRACTOR and the ENGINEER are those persons or organizations identified as such in the Agreement and are referred to throughout the Contract Documents as if singular in number and masculine in gender.

The term ENGINEER means the ENGINEER or his duly authorized representative. The ENGINEER shall be understood to be the ENGINEER of the OWNER, and nothing contained in the Contract Documents shall create any contractual or agency relationship between the ENGINEER and the CONTRACTOR.

The OWNER may include any authorized representative of OWNER as may be set forth in the Special Conditions.

1.02 CONTRACT DOCUMENTS. The Contract Documents shall consist of any and all of the following if applicable: the Advertisement for Proposals, Special Instructions, Proposal, signed Agreement, Performance and Payment Bonds, Special Bonds (when required), General Conditions of the Agreement, Technical Specifications, Plans, and all modifications thereof incorporated in any of the documents before the execution of the Agreement.

The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. In case of conflict between any of the Contract Documents, priority of interpretation shall be in the following order: signed Agreement, Performance and Payment Bonds, Special Bonds (if any), Proposal, Advertisement for Proposals, Special Instructions, Technical Specifications, Plans, and General Conditions of Agreement.

1.03 SUB-CONTRACTOR. The term Sub-Contractor, as employed herein, includes only those having a direct contract with the CONTRACTOR and it includes one who furnishes material worked to a special design according to the plans or specifications of this work, but does not include one who merely furnishes material not so worked.

1.04 WRITTEN NOTICE. Written notice shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, return receipt requested, to the last business address known to him who gives the notice.

1.05 WORK. The CONTRACTOR shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, services, insurance, permits, certificates, licenses, and all water, light, power, fuel, transportation and other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of a good quality. The CONTRACTOR shall, if required, furnish satisfactory evidence as to the kind and quality of materials. Materials of work described in words which so applied have a well known technical or trade meaning shall be held to refer to such recognized standards.

1.06 EXTRA WORK. The term "Extra Work" as used in this contract shall be understood to mean and include all work that may be required by the ENGINEER or OWNER to be done by the CONTRACTOR to accomplish any change, alteration or addition to the work shown upon the plans, or reasonably implied by the specifications, and not covered by the CONTRACTOR'S Proposal.

1.07 CALENDAR DAY. "Calendar Day" is any day of the week or month, no days being excepted.

1.08 SUBSTANTIALLY COMPLETED. By the term "substantially completed" is meant that the structure improvements or facility has been made suitable for use or occupancy and is in condition to serve its intended purpose, but still may require minor miscellaneous work and adjustment.

2. RESPONSIBILITIES OF THE ENGINEER AND THE CONTRACTOR

2.01 OWNER-ENGINEER RELATIONSHIP. The ENGINEER will be the OWNER'S representative during construction. The duties, responsibilities and limitations of authority of the ENGINEER as the OWNER'S representative during construction are as set forth in the Contract Documents and shall not be extended or limited without written consent of the OWNER and ENGINEER. The ENGINEER will advise and consult with the OWNER, and OWNER'S instructions to the CONTRACTOR shall be issued through the ENGINEER.

2.02 PROFESSIONAL INSPECTION BY ENGINEER. The ENGINEER shall make periodic visits to the site to familiarize himself generally with the progress of the executed work and to determine if such work generally meets the performance and design features and the technical and functional engineering requirements of the Contract Documents; provided and except, however, that the ENGINEER shall not be responsible for making any detailed, exhaustive, comprehensive or continuous on-site inspection of the quality or quantity of the work or be in any way responsible, directly or indirectly, for the construction means, methods, techniques, sequences, quality, procedures, programs, safety precautions or lack of same incident thereto or in connection therewith. Notwithstanding any other provision of this agreement or any other Contract Document, the ENGINEER shall not be in any way responsible or liable for any acts, errors, omissions or negligence of the CONTRACTOR, any subcontractor or any of the CONTRACTOR'S or subcontractor's agents, servants or employees or any other person, firm or corporation performing or attempting to perform any of the work.

2.03 PAYMENTS FOR WORK. The ENGINEER shall review CONTRACTOR'S applications for payment and supporting data, determine the amount owed to the CONTRACTOR and approve, in writing, payment to CONTRACTOR in such amounts; such approval of payment to CONTRACTOR constitutes a representation to the OWNER or ENGINEER'S professional judgment that the work has progressed to the point indicated to the best of his knowledge, information and belief, but such approval of an application for payment to CONTRACTOR shall not be deemed as acceptance of the work for which payment has been requested or a representation by ENGINEER that ENGINEER has made any examination to determine how or for what purpose CONTRACTOR has used the moneys paid on account of the Contract price.

2.04 OBJECTIONS AND DETERMINATIONS. The ENGINEER shall make the initial determination of all claims disputes and other matters in question between the CONTRACTOR and the OWNER relating to the execution or progress of the work or the interpretation of the Contract Documents. The ENGINEER'S decision shall be rendered in writing within a reasonable.

2.05 CONTRACTOR'S DUTY AND SUPERINTENDENCE. The CONTRACTOR shall give adequate attention to the faithful prosecution and completion of this contract and shall keep on the work, during its progress, a competent superintendent and any necessary assistants. The superintendent shall represent the CONTRACTOR and all directions given to him shall be as binding as if given to the CONTRACTOR.

The CONTRACTOR is and at all times shall remain an independent contractor, solely responsible for the manner and method of completing his work under this contract, with full power and authority to select the means, method and manner of performing such work, so long as such methods do not adversely affect the completed improvements, the OWNER and ENGINEER being interested only in the result obtained and conformity of such completed improvements to the Contract Documents.

Likewise, the CONTRACTOR shall be solely responsible for the safety of himself, his employees and other persons, as well as for the protection of the safety of the improvements being constructed and the property of himself or any other person, as a result of his operations hereunder. Shop or working construction drawings and any specifications shown in relation thereto, as well as any additional information concerning the work to be performed, passing from or through the ENGINEER, shall not be interpreted as requiring or allowing CONTRACTOR to deviate from the plans and specifications, the intent of such drawings, specifications and any other such instructions being to define with particularity the agreement of the parties as to the work the CONTRACTOR is to perform. CONTRACTOR shall be fully and completely liable, at his own expense, for design, construction, installation and use, or non-use, of all items and methods incident to performance of the contract, and for all loss, damage or injury incident thereto, either to person or property, including, without limitation, the adequacy of all temporary supports, shoring, bracing, scaffolding, machinery or equipment, safety precautions or devices, and similar items or devices used by him during construction.

Any review of work in process, or any visit or observation during construction, or any clarification of plans and specifications, by the OWNER or ENGINEER, or any agent, employee, or representative of either of them, whether through personal observation on the project site or by means of approval of shop drawings for temporary construction or construction processes, or by other means or method, is agreed by the CONTRACTOR to be for the purpose of observing the extent and nature of work completed or being performed, as measured against the drawings and specifications constituting the contract, or for the purpose of enabling CONTRACTOR to more fully understand the plans and specifications so that the completed construction work will conform thereto, and shall in no way relieve the CONTRACTOR from full and complete responsibility for the proper performance of his work on the project, including but without limitation the propriety of means and methods of the CONTRACTOR in performing said contract, and the adequacy of any designs, plans or other facilities for accomplishing such performance. Deviation by the CONTRACTOR from plans and specifications that may have been in evidence during any such visitation or observation by the ENGINEER, or any of his representatives whether called to the CONTRACTOR'S attention or not, shall in no way relieve

CONTRACTOR from his responsibility to complete all work in accordance with said plans and specifications.

2.06 CONTRACTOR'S FAMILIARITY WITH SITE – EXISTING STRUCTURES – IMPROVEMENTS . It is understood and agreed that the CONTRACTOR has, by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and all other matters which can in any way affect the work under this contract. No verbal agreement or conversation with any officer, agent or employee of the OWNER or ENGINEER, either before or after the execution of this contract, shall affect or modify any of the terms or obligations herein contained.

The plans show the locations of all known surface and subsurface structures. However, the ENGINEER and OWNER assume no responsibility for failure to show any or all of these structures on the plans, or to show them in their exact location. It is mutually agreed that such failure shall not be considered sufficient basis for claims for additional compensation for extra work or for increasing the pay quantities in any manner whatsoever, unless the obstruction encountered is such as to necessitate changes in the lines or grades, or requires the building of special work, provisions for which are not made in the plans and proposal, in which case the provisions in these specifications for extra work shall apply.

2.07 CHARACTER OF WORKMEN. The CONTRACTOR agrees to employ only orderly and competent men, skillful in the performance of the type of work required under this contract, to do the work; and agrees that whenever the OWNER or ENGINEER shall inform him in writing that any man or men on the work are, in his opinion, incompetent, unfaithful or disorderly, such man or men shall be discharged from the work and shall not again be employed on the work without the OWNER'S or ENGINEER'S written consent.

2.08 CONTRACTOR'S BUILDINGS. The building of structures for housing men, or the erection of tents or other forms of protection, will be permitted only at such places as the ENGINEER shall direct, and the sanitary conditions of the grounds in or about such structures shall at all times be maintained in a manner satisfactory to the ENGINEER.

2.09 SANITATION. Necessary sanitary conveniences for the use of laborers on the work, properly secluded from public observation, shall be constructed and maintained by the CONTRACTOR in such manner and at such points as shall be approved by the ENGINEER, and their use shall be strictly enforced.

2.10 SHOP DRAWINGS. The CONTRACTOR shall submit to the ENGINEER, with such promptness as to cause no delay in his own work or in that of any other contractor, four checked copies, unless otherwise specified, of all shop and/or setting drawings and schedules required for the work of the various trades, and the ENGINEER shall pass upon them with reasonable promptness, noting desired corrections. The CONTRACTOR shall make any corrections required by the ENGINEER, file with him two corrected copies and furnish such other copies as may be needed. The ENGINEER'S approval of such drawings or schedules shall not relieve the CONTRACTOR from responsibility for deviations from drawings or specifications, unless he has in writing called the ENGINEER'S attention to such deviations at the time of submission, nor shall it relieve him from responsibility for errors of any sort in shop

drawings or schedules. It shall be the CONTRACTOR'S responsibility to fully and completely review all shop drawings to ascertain their effect on his ability to perform the required contract work in accordance with the plans and specifications and within the contract time.

Such review by the ENGINEER shall be for the sole purpose of determining the sufficiency of said drawings or schedules to result in finished improvements in conformity with the plans and specifications, and shall not relieve the CONTRACTOR of his duty as an independent contractor as previously set forth, it being expressly understood and agreed that the ENGINEER does not assume any duty to pass upon the propriety or adequacy of such drawings or schedules, or any means or methods reflected thereby, in relation to the safety of either person or property during CONTRACTOR'S performance hereunder.

2.11 PRELIMINARY APPROVAL. The ENGINEER shall not have the power to waive the obligations of this contract for the furnishing by the CONTRACTOR of good material, and of his performing good work as herein described, in full accordance with the plans and specifications. No failure or omission of the ENGINEER to discover, object to or condemn any defective work or material shall release the CONTRACTOR from the obligations to fully and properly perform the contract, including without limitation, the obligation to at once tear out, remove and properly replace the same at any time prior to final acceptance upon the discovery of said defective work or material; provided, however, that the ENGINEER shall, upon specific written request of the CONTRACTOR, inspect and accept or reject any material furnished, and in event the material has been once accepted by the ENGINEER, such acceptance shall be binding on the OWNER, unless it can be clearly shown that such material furnished does not meet the specifications for this work.

Any questioned work may be ordered taken up or removed for re-examination by the ENGINEER prior to final acceptance, and if found not in accordance with the specifications for said work, all expense of removing, re-examination and replacement shall be borne by the CONTRACTOR, otherwise the expense thus incurred shall be allowed as EXTRA WORK, and shall be paid for by the OWNER; provided that, where inspection or approval is specifically required by the specifications prior to performance of certain work, should the CONTRACTOR proceed with such work without requesting in writing prior inspection or approval, he shall bear all expense of taking up, removing, and replacing this work if so directed by the ENGINEER.

2.12 DEFECTS AND THEIR REMEDIES. It is further agreed that if the work or any part thereof, or any material brought on the site of the work for use in the work or selected for the same, shall be deemed by the OWNER or ENGINEER as unsuitable or not in conformity with the specifications, the CONTRACTOR shall, after receipt of written notice thereof from the OWNER or ENGINEER, forthwith remove such material and rebuild or otherwise remedy such work so that it shall be in full accordance with this contract.

2.13 CHANGES AND ALTERATIONS. The CONTRACTOR further agrees that the OWNER may make such changes and alterations as the OWNER may see fit, in the line, grade, form, dimensions, plans or materials for the work herein contemplated, or any part thereof, either before or after the beginning of the construction, without affecting the validity of this contract and the accompany Performance and Payment Bonds.

If such changes or alterations diminish the quantity of the work to be done, they shall not constitute the basis for a claim for damages for anticipated profits on the work that may be dispensed with. If the amount of work is increased, such additional work shall be paid for as provided under Extra Work. In case the OWNER shall make such changes or alterations as shall make useless any work already done or material already furnished or used in said work, then the OWNER shall recompense the CONTRACTOR for any material or labor so used, and for any actual loss occasioned by such change, due to actual expenses incurred in preparation for the work as originally planned.

3. GENERAL OBLIGATIONS AND RESPONSIBILITIES

3.01 KEEPING PLANS AND SPECIFICATIONS ACCESSIBLE. The ENGINEER shall furnish the CONTRACTOR with an adequate and reasonable number of copies of all plans and specifications without expense to him, and the CONTRACTOR shall keep one copy of the same constantly accessible on the work, with the latest revisions noted thereon.

3.02 OWNERSHIP OF DRAWINGS. All drawings, specifications and copies thereof furnished by the ENGINEER shall not be reused on other work, and, with the exception of the signed contract sets, are to be returned to him on request, at the completion of the work. All models are the property of the OWNER.

3.03 ADEQUACY OF DESIGN. It is understood that the OWNER believes it has employed competent engineers and designers. It is, therefore, agreed that, as to the CONTRACTOR only, the OWNER shall be responsible for the adequacy of the design, sufficiency of the Contract Documents, and the practicability of the operations of the completed project; provided the CONTRACTOR has complied with the requirements of the said Contract Documents, all approved modifications thereof, and additions and alterations thereto approved in writing by the OWNER. The burden of proof of such compliance shall be upon the CONTRACTOR to show that he has complied with the said requirements of the Contract Documents, approved modifications thereof and all approved additions and alterations thereto.

3.04 RIGHT OF ENTRY. The OWNER reserves the right to enter the property or location on which the works herein contracted for are to be constructed or installed, by such agent or agents as he may elect, for the purpose of inspecting the work, or for the purpose of constructing or installing such collateral work as said OWNER may desire.

3.05 COLLATERAL CONTRACTS. The OWNER agrees to provide by separate contract or otherwise, all labor and material essential to the completion of the work specifically excluded from this contract, in such manner as not to delay the progress of the work or damage said CONTRACTOR, except where such delays are specifically mentioned elsewhere in the Contract Documents.

3.06 DISCREPANCIES AND OMISSIONS. It is further agreed that it is the intent of this contract that all work must be done and all material must be furnished in accordance with the generally accepted practice, and in the event of any discrepancies between the separate contract documents, the priority of interpretation defined under "Contract Documents" shall govern. In the event that there is still any doubt as to the meaning and intent of any portion of the contract, specifications or drawings, the ENGINEER shall define which is intended to apply to the work.

3.07 EQUIPMENT, MATERIALS AND CONSTRUCTION PLANT. The CONTRACTOR shall be responsible for the care, preservation, conservation, protection and replacement of all materials, supplies, machinery, equipment, tools, apparatus, accessories, facilities, all means of construction, and any and all parts of the work, whether the CONTRACTOR has been paid, partially paid, or not paid for such work, or whether OWNER has taken possession of completed portions of such work, until the entire work is completed and accepted.

3.08 PROTECTION AGAINST ACCIDENT TO EMPLOYEES AND THE PUBLIC. The CONTRACTOR shall at all times exercise reasonable precautions for the safety of employees and others on or near the work and shall comply with all applicable provisions of Federal, State, and Municipal safety laws and building and construction codes. All machinery and equipment and other physical hazards shall be guarded in accordance with the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America except where incompatible with Federal, State, or Municipal laws or regulations. The CONTRACTOR shall provide such machinery guards, safe walkways, ladders, bridges, gangplanks, and other safety devices. The safety precautions actually taken and their adequacy shall be the sole responsibility of the CONTRACTOR, acting at his discretion as an independent contractor.

3.09 PERFORMANCE AND PAYMENT BONDS. Unless otherwise specified, it is further agreed by the parties to this Contract that the CONTRACTOR will execute separate performance and payment bonds, each in the sum of one hundred (100) percent of the total contract price as the Guaranteed Maximum Price, guaranteeing faithful performance of the work and the fulfillment of any guarantees required, and further guaranteeing payment to all persons supplying labor and materials or furnishing him any equipment in the execution of the Contract, and it is agreed that this contract shall not be in effect until such performance and payment bonds are furnished and approved by the OWNER.

Unless otherwise approved in writing by the OWNER, the surety company underwriting the bonds shall be acceptable according to the latest list of companies holding certificates of authority from the appropriate authority of the State of Texas.

Unless otherwise stated, the cost of the premium for the performance and payment bonds shall be included in the CONTRACTOR'S proposal.

3.10 LOSSES FROM NATURAL CAUSES. Unless otherwise specified, all loss or damage to the CONTRACTOR arising out of the natural conditions of the land where the Work is being performed and other naturally occurring conditions, such as, but not limited to, floods, sink holes, acts of God, etc. or from any unforeseen circumstance related to the same, or from unusual obstructions or difficulties which may be encountered in the prosecution of the work as a result of said conditions or causes, such as, but not limited to, underground streams, rock, sloughing soils, etc., shall be sustained and borne by the CONTRACTOR at his own cost and expense. Any repair or reconstruction to the Work associated with or required as a result of said natural conditions or causes shall also be sustained and borne by the CONTRACTOR at his own cost and expense.

3.11 PROTECTION OF ADJOINING PROPERTY. THE CONTRACTOR SHALL TAKE PROPER MEANS TO PROTECT THE ADJACENT OR ADJOINING

PROPERTY OR PROPERTIES IN ANY WAY ENCOUNTERED, WHICH MIGHT BE INJURED OR SERIOUSLY AFFECTED BY ANY PROCESS OF CONSTRUCTION TO BE UNDERTAKEN UNDER THIS AGREEMENT, FROM ANY DAMAGE OR INJURY BY REASON OF SAID PROCESS OF CONSTRUCTION; AND HE SHALL BE LIABLE FOR ANY AND ALL CLAIMS FOR SUCH DAMAGE ON ACCOUNT OF HIS FAILURE TO FULLY PROTECT ALL ADJOINING PROPERTY. THE CONTRACTOR AGREES TO INDEMNIFY, SAVE AND HOLD HARMLESS THE OWNER AND ENGINEER AGAINST ANY CLAIM OR CLAIMS FOR DAMAGES DUE TO ANY INJURY TO ANY ADJACENT OR ADJOINING PROPERTY, ARISING OR GROWING OUT OF THE PERFORMANCE OF THE CONTRACT.

3.12 PROTECTION AGAINST CLAIMS OF SUB-CONTRACTORS, LABORERS, MATERIALMEN, AND FURNISHERS OF MACHINERY, EQUIPMENT AND SUPPLIES. THE CONTRACTOR AGREES THAT HE WILL INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ALL CLAIMS GROWING OUT OF THE DEMANDS OF SUB-CONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS, AND ALL SUPPLIES, INCLUDING COMMISSARY, INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT, REGARDLESS WHETHER CAUSED WHOLLY OR IN PART BY THE NEGLIGENCE OR GROSS NEGLIGENCE OF ANY PARTY INDEMNIFIED HEREUNDER AND REGARDLESS OF THE APPLICATION OF ANY WORKER'S COMPENSATION OR SIMILAR STATUTE WHICH MIGHT APPLY TO ANY EMPLOYEES OR AGENTS OF THE CONTRACTOR OR ANY SUBCONTRACTOR. WHEN SO DESIRED BY THE OWNER, THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. IF THE CONTRACTOR FAILS SO TO DO, THEN THE OWNER MAY, AT ITS SOLE OPTION, EITHER PAY DIRECTLY ANY UNPAID BILLS OF WHICH THE OWNER HAS WRITTEN NOTICE AND DEDUCT SUCH AMOUNT FROM THE NEXT PARTIAL PAYMENT DUE TO CONTRACTOR, OR WITHHOLD FROM THE CONTRACTOR'S UNPAID COMPENSATION A SUM OF MONEY DEEMED REASONABLY SUFFICIENT TO LIQUIDATE ANY AND ALL SUCH LAWFUL CLAIMS UNTIL SATISFACTORY EVIDENCE IS FURNISHED THAT ALL LIABILITIES HAVE BEEN FULLY DISCHARGED, WHEREUPON PAYMENTS TO THE CONTRACTOR SHALL BE RESUMED IN FULL IN ACCORDANCE WITH THE TERMS OF THIS CONTRACT; BUT IN NO EVENT SHALL THE PROVISIONS OF THIS SENTENCE BE CONSTRUED TO IMPOSE ANY OBLIGATION UPON THE OWNER BY EITHER THE CONTRACTOR OR HIS SURETY.

3.13 PROTECTION AGAINST ROYALTIES OR PATENTED INVENTION. CONTRACTOR SHALL PAY ALL ROYALTIES AND LICENSE FEES, AND SHALL PROVIDE FOR THE USE OF ANY DESIGN, DEVICE, MATERIAL OR PROCESS COVERED BY LETTERS PATENT OR COPYRIGHT BY SUITABLE LEGAL AGREEMENT WITH THE PATENTEE OR OWNER. THE CONTRACTOR SHALL DEFEND ALL SUITS OR CLAIMS FOR INFRINGEMENT OF ANY PATENT OR COPYRIGHT RIGHTS AND SHALL INDEMNIFY AND SAVE THE OWNER AND ENGINEER HARMLESS FROM ANY LOSS ON ACCOUNT THEREOF, EXCEPT THAT THE OWNER SHALL DEFEND ALL SUCH SUITS AND CLAIMS AND SHALL

BE RESPONSIBLE FOR ALL SUCH LOSS WHEN A PARTICULAR DESIGN, DEVICE, MATERIAL OR PROCESS OR THE PRODUCT OF A PARTICULAR MANUFACTURER OR MANUFACTURERS IS SPECIFIED OR REQUIRED BY THE OWNER; PROVIDED, HOWEVER, IF CHOICE OF ALTERNATE DESIGN, DEVICE, MATERIAL OR PROCESS IS ALLOWED TO THE CONTRACTOR, THEN CONTRACTOR SHALL INDEMNIFY AND SAVE OWNER HARMLESS FROM ANY LOSS ON ACCOUNT THEREOF. IF THE MATERIAL OR PROCESS SPECIFIED OR REQUIRED BY THE OWNER IS AN INFRINGEMENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUCH LOSS UNLESS HE PROMPTLY GIVES SUCH INFORMATION TO THE OWNER.

3.14 LAWS AND ORDINANCES. THE CONTRACTOR SHALL AT ALL TIMES OBSERVE AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS, ORDINANCES AND REGULATIONS, WHICH IN ANY MANNER AFFECT THE CONTRACT OR THE WORK, AND SHALL INDEMNIFY AND SAVE HARMLESS THE OWNER AND ENGINEER AGAINST ANY CLAIM ARISING FROM THE VIOLATION OF ANY SUCH LAWS, ORDINANCES, AND REGULATIONS WHETHER BY THE CONTRACTOR OR HIS EMPLOYEES, EXCEPT WHERE SUCH VIOLATIONS ARE CALLED FOR BY THE PROVISIONS OF THE CONTRACT DOCUMENTS. IF THE CONTRACTOR OBSERVES THAT THE PLANS AND SPECIFICATIONS ARE AT VARIANCE THEREWITH, HE SHALL PROMPTLY NOTIFY THE ENGINEER IN WRITING, AND ANY NECESSARY CHANGES SHALL BE ADJUSTED AS PROVIDED IN THE CONTRACT FOR CHANGES IN THE WORK. IF THE CONTRACTOR PERFORMS ANY WORK KNOWING IT TO BE CONTRARY TO SUCH LAWS, ORDINANCES, RULES AND REGULATIONS, AND WITHOUT SUCH NOTICE TO THE ENGINEER, HE SHALL BEAR ALL COSTS ARISING THEREFROM. IN CASE THE OWNER IS A BODY POLITIC AND CORPORATE, THE LAW FROM WHICH IT DERIVES ITS POWERS, INsofar AS THE SAME REGULATES THE OBJECTS FROM WHICH, OR THE MANNER IN WHICH, OR THE CONDITIONS UNDER WHICH THE OWNER MAY ENTER INTO CONTRACT, SHALL BE CONTROLLING, AND SHALL BE CONSIDERED AS PART OF THIS CONTRACT, TO THE SAME EFFECT AS THOUGH EMBODIED HEREIN.

3.15 ASSIGNMENT AND SUBLETTING. The CONTRACTOR further agrees that he will retain personal control and will give his personal attention to the fulfillment of this contract and that he will not assign by Power of Attorney, or otherwise, or sublet said contract without the written consent of the OWNER or ENGINEER, and that no part or feature of the work will be sublet to anyone objectionable to the ENGINEER or the OWNER. The CONTRACTOR further agrees that the subletting of any portion or feature of the work, or materials required in the performance of this contract, shall not relieve the CONTRACTOR from his full obligations to the OWNER, as provided by this Agreement.

3.16 INDEMNIFICATION. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS THE OWNER AND THE ENGINEER AND THEIR RESPECTIVE OFFICERS, AGENTS AND EMPLOYEES, FROM AND AGAINST ALL DAMAGES, CLAIMS, LOSSES, DEMANDS, SUITS, JUDGMENTS AND COSTS, INCLUDING REASONABLE ATTORNEYS' FEES AND EXPENSES, ARISING OUT OF OR RESULTING FROM THE PERFORMANCE OF THE WORK

PROVIDED THAT NAY SUCH DAMAGES, CLAIM, LOSS DEMAND, SUIT, JUDGMENT, COST OR EXPENSE:

(1) IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE OR DEATH OR TO INJURY OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN THE WORK ITSELF) INCLUDING THE LOSS OF USE RESULTING THEREFROM; AND,

(2) IS CAUSED IN WHOLE OR IN PART BY ANY NEGLIGENT ACT OR OMISSION OF THE CONTRACTOR, ANY SUBCONTRACTOR, THE OWNER, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY ONE OF THEM, OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT IT IS CAUSED IN PART BY A PARTY INDEMNIFIED HEREUNDER.

THE OBLIGATION OF THE CONTRACTOR UNDER THIS PARAGRAPH SHALL NOT EXTEND TO THE LIABILITY OF THE ENGINEER, HIS AGENTS OR EMPLOYEES ARISING OUT OF THE PREPARATION OR APPROVAL OF MAPS, DRAWINGS, REPORTS, SURVEYS, CHANGE ORDERS, DESIGNS OR SPECIFICATIONS, OR THE GIVING OF OR THE FAILURE TO GIVE DIRECTIONS OR INSTRUCTIONS BY THE ENGINEER, HIS AGENTS OR EMPLOYEES, PROVIDED SUCH GIVING OR FAILURE TO GIVE THE PRIMARY CAUSE OF THE INJURY OR DAMAGE.

3.17 INSURANCE. The CONTRACTOR at his own expense shall purchase, maintain and keep in force such insurance as will protect him from claims set forth below which may arise out of or result from the CONTRACTOR'S operations under the Contract, whether such operations be by himself or by any Subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable, including the acts of OWNER:

(1) Workmen's compensation claims, disability benefits and other similar employee benefit acts;

(2) Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees, and claims insured by usual bodily injury liability coverages;

(3) Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees, and claims insured by usual bodily injury liability coverages; and

(4) Claims for damages because of injury to or destruction of tangible property, including loss of use resulting there from.

3.17.1 POLICIES OF INSURANCE. Before commencing any of the work, CONTRACTOR shall file with the OWNER Certificates of Insurance and a copy of the Declarations Page of each Policy of Insurance obtained for or required by this Contract on the Project acceptable to the OWNER and the ENGINEER. Such Policies shall contain a provision

that coverages afforded under the Policies will not be canceled until at least thirty days' prior written notice has been given to the OWNER.

The CONTRACTOR shall also file with the OWNER valid Policies of Insurance covering all sub-contractors.

3.17.2 WAIVER OF SUBROGATION. CONTRACTOR, its agents, employees and subcontractors, hereby agrees to waive its rights of recovery from the OWNER or ENGINEER with regard to any loss or damage arising out of any claim or incident for which insurance coverage or indemnification is required under the Contract Documents.

3.17.3 See Attached Insurance Rider as Exhibit A to these General Conditions for Owner's Insurance Requirements Applicable to the Work.

4. PROSECUTION AND PROGRESS

4.01 TIME AND ORDER OF COMPLETION. It is the meaning and intent of this contract, unless otherwise herein specifically provided, that the CONTRACTOR shall be allowed to prosecute his work at such times and seasons, in such order of precedence, and in such manner as shall be most conducive to economy of construction; provided however, that the order and the time of prosecution shall be such that the work shall be substantially completed as a whole and in part in accordance with this contract, the plans and specifications, and within the time of completion designated in the Proposal; provided, also, that when the OWNER is having other work done, either by contract or by his own force, the ENGINEER may direct the time and manner of constructing the work done under this contract, so that conflict will be avoided and the construction of the various works being done for the OWNER shall be harmonized.

The CONTRACTOR shall submit with each pay application or at such times as may reasonably be requested by the ENGINEER, schedules which shall show the order in which the CONTRACTOR proposes to carry on the work, with dates at which the CONTRACTOR will start the several parts of the work, and estimated dates of completion of the several parts.

4.02 EXTENSION OF TIME. Should the CONTRACTOR be delayed in the completion of the work by any act or neglect of the OWNER or ENGINEER, or of any employee of either, or by other contractors employed by the OWNER, or by changes ordered in the work, or by strikes, lockouts, fires, and unusual delays by common carriers, or uncontrollable cause or causes beyond the CONTRACTOR'S control, then an extension of time sufficient to compensate for the delay as determined by the ENGINEER shall be allowed for completing the work; provided, however, that the CONTRACTOR shall give the ENGINEER prompt notice in writing of the existence and cause of such delay.

4.03 HINDRANCES AND DELAYS. The CONTRACTOR shall receive no financial compensation for delay or hindrance of the Work. In no event shall OWNER be liable to CONTRACTOR or any Subcontractor, or any other person, company, entity, or agent thereof, for any damages arising out of or associated with any delay or hindrance to the Work. CONTRACTOR'S sole remedy shall be an extension of time.

5. MEASUREMENT AND PAYMENT

5.01 QUANTITIES AND MEASUREMENTS. No extra or customary measurements of any kind will be allowed, but the actual measured and/or computed length, area, solid contents, number and weight only shall be considered, unless otherwise specifically provided.

5.02 ESTIMATED QUANTITIES. This agreement, including the specifications and plans, is intended to show clearly all work to be done and material to be furnished hereunder. Where the estimated quantities are shown for the various classes of work to be done and material to be furnished under this contract, they are approximate and are to be used only as a basis for estimating the probable cost of the work and for comparing the proposals offered for the work. It is understood and agreed that the actual amount of work to be done and material to be furnished under this contract may differ somewhat from these estimates.

5.03 PRICE OF WORK. In consideration of the furnishing of all the necessary labor, equipment and material, and the completion of all work by the CONTRACTOR, and on the completion of all work and of the delivery of all material embraced in this Contract in full conformity with the specifications and stipulations herein contained, the OWNER agrees to pay the CONTRACTOR the prices set forth in the Proposal hereto attached, which has been made a part of this contract. The CONTRACTOR hereby agrees to receive such prices in full payment for furnishing all material and all labor required for the aforesaid work, also for all expense incurred by him, and for well and truly performing the same and the whole thereof in the manner and according to this Agreement.

5.04 PAYMENTS. On or before the 26th day of each month, the CONTRACTOR shall prepare and submit to the ENGINEER an application for payment showing as completely as practicable the total value of the work done by the CONTRACTOR up to and including the last day immediately preceding the date of such application and the value of all sound materials delivered on the site of the work that are to be fabricated into the work.

The ENGINEER shall verify CONTRACTOR'S application, shall either approve or modify the total value of the work done by CONTRACTOR and the value of materials delivered on the site, and shall submit to OWNER such application for payment as approved or modified with ENGINEER'S verification affixed thereto on or before the 3rd day of the month following the receipt of the application from CONTRACTOR.

The OWNER shall pay the CONTRACTOR on or before the 25th day of the month in which the OWNER receives the approved application from the ENGINEER the total amount of the approved and verified application, less 10 percent of the amount thereof, which 5 percent shall be retained until final payment, and further less all previous payments and all further sums that may be retained by the OWNER under the terms of this Agreement.

In the event of partial payment by OWNER any rights with respect with CONTRACTOR'S right to receive payments which are delayed or withheld shall be in accordance with Government Code Chapter 2251.

It is understood, however, that in case the whole work be near to completion and some unexpected and unusual delay occurs due to no fault or neglect on the part of the CONTRACTOR, the OWNER may, upon written recommendation of the ENGINEER, pay a

reasonable and equitable portion of the retainage to the CONTRACTOR, or the CONTRACTOR at the OWNER'S option, may be relieved of the obligation to fully complete the work and, thereupon, the CONTRACTOR shall receive payment of the balance due him under the contract subject only to the conditions stated under "Final Payment." Any such payments of retainage by OWNER to CONTRACTOR prior to final payment must be agreed to in writing by the surety or sureties on CONTRACTOR'S payment and performance bonds.

The CONTRACTOR shall submit to the ENGINEER, copies of the material invoices with the application for payment. No payment will be made to the CONTRACTOR until the quantities of work submitted have been checked and verified by the ENGINEER.

5.05 USE OF COMPLETED PORTIONS. The OWNER shall have the right to take possession of and use any completed or partially completed portions of the work, notwithstanding the time for completing the entire work or such portions may not have expired. Such taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents, nor shall the risk of loss change from CONTRACTOR to OWNER. If such prior use increases the cost of or delays the work, the CONTRACTOR shall be entitled to such extra compensation, or extension of time, or both, as the ENGINEER may determine.

5.06 FINAL COMPLETION AND ACCEPTANCE. The CONTRACTOR shall notify the ENGINEER when, in the CONTRACTOR'S opinion, the contract is "substantially completed" and when so notifying the ENGINEER, the CONTRACTOR shall furnish to the ENGINEER in writing a detailed list of unfinished work. The ENGINEER will review the CONTRACTOR'S list of unfinished work and will add thereto such items as the CONTRACTOR has failed to include. The substantial completion of the structure or facility shall not excuse the CONTRACTOR from performing all of the work undertaken, whether of a minor or major nature, and thereby completing the structure or facility in accordance with the Contract Documents.

Within ten (10) days after the CONTRACTOR has given the ENGINEER written notice that the work has been completed, or substantially completed, the ENGINEER and the OWNER shall inspect the work and within said time, if the work be found to be completed or substantially completed in accordance with the Contract Documents, the ENGINEER shall issue to the OWNER and the CONTRACTOR his Certificate of Completion, and thereupon it shall be the duty of the OWNER within ten (10) days to issue a Certificate of Acceptance of the work to the CONTRACTOR or to advise the CONTRACTOR in writing of the reason for non-acceptance.

5.07 AFFIDAVIT OF BILLS PAID. Upon completion of the project and final acceptance by the OWNER and ENGINEER, the CONTRACTOR shall furnish the OWNER with an affidavit certifying that all suppliers and subcontractors have been paid, before final payment will be made by OWNER.

5.08 FINAL PAYMENT. Upon the issuance of the Certificate of Completion, the ENGINEER shall proceed to make final measurements and prepare a final statement of the value of all work performed and materials furnished under the terms of the Agreement and shall certify same to the OWNER. Thereafter, OWNER shall pay to the CONTRACTOR, on or after the 30th day and before the 35th day, the balance due the CONTRACTOR under the terms of this Agreement, provided he has fully performed his contractual obligations under the terms of this

contract and provided the CONTRACTOR has delivered to the OWNER the affidavit of bills paid, and a surety release. Neither the Certificate of Acceptance nor the final payment, nor any provision in the Contract Documents, shall relieve the CONTRACTOR of the obligation for fulfillment of any warranty which may be required.

5.09 PAYMENTS WITHHELD. The OWNER may, on account of subsequently discovered evidence, withhold or nullify the whole or part of any certificate to such extent as may be necessary to protect himself from loss on account of:

- (a) Defective work not remedied.
- (b) Claims filed or reasonable evidence indicating probable filing of claims.
- (c) Failure of the CONTRACTOR to make payments properly to subcontractors or for material or labor.
- (d) Damage to another contractor.
- (e) Reasonable doubt that the work can be completed for the unpaid balance for the contract amount.
- (f) Reasonable indication the work will not be completed within the contract time.
- (g) Failure to submit "as built" drawings as required by the Contract Documents.
- (h) Failure to properly store materials and equipment.

When the above grounds are removed or the CONTRACTOR provides a surety bond satisfactory to the OWNER, which will protect the OWNER in the amount withheld, payment shall be made for amounts withheld because of them.

6. EXTRA WORK AND CLAIMS

6.01 CHANGE ORDERS. Without invalidating this Agreement, the OWNER may, at any time or from time to time, order additions, deletions or revisions to the work; such changes will be authorized by written Change Order prepared by the ENGINEER for execution by the OWNER and the CONTRACTOR. The Change Order shall set forth the basis for any change in contract price, as hereinafter set forth for Extra Work, and any change in contract time which may result from the change.

6.02 CONSTRUCTION CHANGE DIRECTIVE. In the event the OWNER and CONTRACTOR cannot agree on the scope or cost of a change order, or to avoid delays to the progress of the Work, the ENGINEER may in writing instruct the CONTRACTOR to proceed with additions, deletions, or revisions to the Work as set forth in a written Change Directive. Work performed by the CONTRACTOR pursuant to a written Change Directive shall be compensated on a Time and Materials Basis, as described more specifically below in section 6.04 Method C.

6.03 MINOR CHANGES. The ENGINEER may authorize minor changes in the work not inconsistent with the overall intent of the Contract Documents and not involving an increase in Contract Price. If the CONTRACTOR believes that any minor change or alteration authorized by the ENGINEER involves Extra Work and entitles him to an increase in the Contract Price, the CONTRACTOR shall make written request to the ENGINEER for a written Field Order. In such case, the CONTRACTOR by copy of his communication to the ENGINEER or otherwise in

writing shall advise the OWNER of his request to the ENGINEER for a written Field Order and that the work involved may result in an increase in the Contract Price.

Any request by the CONTRACTOR for a change in Contract Price shall be made in writing in accordance with the provisions of this section prior to beginning the work covered by the proposed change.

6.04 EXTRA WORK. It is agreed that the basis of compensation to the CONTRACTOR for work either added or deleted by a Change Order or for which a claim for Extra Work is made shall be determined by one or more of the following methods:

Method (A)-By agreed unit prices; or

Method (B)-By agreed lump sum; or

Method (C)-If neither Method (A) nor Method (B) be agreed upon before the Extra Work is commenced, then the CONTRACTOR shall be paid the "actual field cost" of the work, plus fifteen (15) percent.

In the event said Extra Work be performed and paid for under Method (C), then the provisions of this paragraph shall apply and the "actual field cost" is hereby defined to include the cost to the CONTRACTOR of all workmen, such as foreman, timekeepers, mechanics and laborers, and materials, supplies, teams, trucks, rentals on machinery and equipment, for the time actually employed or used on such Extra Work, plus actual transportation charges necessarily incurred, together with all power, fuel, lubricants, water and similar operating expenses, also all necessary incidental expenses incurred directly on account of such Extra Work, including Social Security Old Age Benefits and other payroll taxes, and, a ratable proportion of premiums on Performance and Payment Bonds and Maintenance Bonds, Public Liability and Property Damage and Workmen's Compensation, and all other insurance as may be required by any law or ordinance, or directed by the OWNER, or by them agreed to. The ENGINEER may direct the form in which accounts of the "actual field cost" shall be kept and the records of these accounts shall be made available to the ENGINEER. The ENGINEER or OWNER may also specify in writing, before the work commences, the method of doing the work and the type and kind of machinery and equipment to be used; otherwise these matters shall be determined by the CONTRACTOR. Unless otherwise agreed upon, the prices for the use of machinery and equipment shall be determined by using 100 percent, unless otherwise specified, of the latest schedule of Equipment Ownership Expense adopted by the Associated General Contractors of America. Where practicable the terms and prices for the use of machinery and equipment shall be incorporated in the written Change Order. The fifteen percent (15%) of the "actual field cost" to be paid the CONTRACTOR shall cover and compensate him for his profit, overhead, general superintendence and field office expense, and all other elements of cost and expense not embraced within the "actual field cost" as herein defined; save that where the CONTRACTOR'S Camp or Field Office must be maintained primarily on account of such Extra Work, then the cost to maintain and operate the same shall be included in the "actual field cost."

No claim for Extra Work of any kind will be allowed unless ordered in writing by the ENGINEER. In case any orders or instructions, either oral or written, appear to the CONTRACTOR to involve Extra Work for which he should receive compensation or an adjustment in the construction time, he shall make written request to the ENGINEER for written order authorizing such Extra Work. Should a difference of opinion arise as to what does or does not constitute Extra Work, or as to the payment therefor, and the ENGINEER insists upon its

performance, the CONTRACTOR shall proceed with the work after making written request for written order and shall keep an accurate account of the "actual field cost" thereof, as provided under Method (C). The CONTRACTOR will thereby preserve the right to submit the matter of payment to a court of general jurisdiction to decide the matter, otherwise the CONTRACTOR shall waive all claims for payment for Extra Work.

7. ABANDONMENT, SUSPENSION, OR TERMINATION OF CONTRACT

7.01 ABANDONMENT BY CONTRACTOR. Should CONTRACTOR cease performance, fail to make progress towards completion, abandon and fail or refuse to resume work within ten (10) days after written notification from the OWNER, or the ENGINEER, or if the CONTRACTOR fails to comply with the orders of the ENGINEER, when such orders are consistent with the Contract Documents, then, and in that case, where performance bond exists, the Surety on that bonds shall be notified in writing and directed to complete the work, and a copy of said notice shall be delivered to the CONTRACTOR.

After receiving said notice, the CONTRACTOR shall not remove from the work any machinery, equipment, tools, materials or supplies then on the job, but the same, together with any materials and equipment under contract for the work, may be held for use on the work by the OWNER or the Surety on the performance bond, or another contractor in completion of the work; and the CONTRACTOR shall not receive any rental or credit therefor (except when used in connection with Extra Work, where credit shall be allowed as provided for under Section 6, Extra Work and Claims), it being understood that the use of such equipment and materials will ultimately reduce the cost to complete the work and be reflected in the final settlement.

In case the Surety should fail to commence compliance with the notice for completion hereinbefore provided for, within ten (10) days after service of such notice, then the OWNER may provide for completion of the work in either of the following elective manners:

7.01.1 The OWNER may employ such force of men and use such machinery, equipment, tools, materials and supplies as said OWNER may deem necessary to complete the work and charge the expense of such labor, machinery, equipment, tools, materials and supplies to said CONTRACTOR, and expense so charged shall be deducted and paid by the OWNER out of such moneys as may be due, or that may thereafter at any time become due to the CONTRACTOR under and by virtue of this Agreement. In case such expense is less than the sum which would have been payable under this contract, if the same had been completed by the CONTRACTOR, then said CONTRACTOR shall receive the difference. In case such expense is greater than the sum which would have been payable under this contract, if the same had been completed by said CONTRACTOR, then the CONTRACTOR and/or his Surety shall pay the amount of such excess to the OWNER; or

7.01.2 The OWNER may let the contract for the completion of the work under substantially the same terms and conditions which are provided in this contract. In the case of any increase in cost to the OWNER under the new contract as compared to what would have been the cost under this contract, such increase shall be charged to the CONTRACTOR and the Surety shall be and remain bound therefore. However, should the cost to complete any such new contract prove to be less than what would have been the cost to complete under this contract, the CONTRACTOR and/his Surety shall be credited therewith.

When the work shall have been substantially completed the CONTRACTOR and his Surety shall be so notified and Certificates of Completion and Acceptance, as provided in Paragraph 5.06 hereinabove, shall be issued. A complete itemized statement of the contract accounts, certified to by the ENGINEER as being correct, shall then be prepared and delivered to the CONTRACTOR and his Surety, whereupon the CONTRACTOR and/or his Surety, or the OWNER as the case may be, shall pay the balance due as reflected by said statement, within fifteen (15) days after the date of such Certificate of Completion.

After final completion of the work and in the event the statement of accounts shows that the cost to complete the work is less than that which would have been the cost to the OWNER had the work been completed by the CONTRACTOR under the terms of this contract; or when the CONTRACTOR and/or his Surety shall pay the balance shown to be due by them to the OWNER, then all machinery, equipment, tools, materials or supplies left on the site of the work shall be turned over the CONTRACTOR and/or his Surety.

7.02 OWNER MAY SUSPEND WORK FOR COVENIENCE

At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be granted an extension of the Contract Times directly attributable to any such suspension if CONTRACTOR makes a Claim therefor .

7.03 OWNER MAY TERMINATE FOR CAUSE

7.03.1 The occurrence of any one or more of the following events will justify termination for cause:

1. CONTRACTOR's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 4.01 as adjusted from time to time pursuant to Paragraph 4.02;

2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;

3. CONTRACTOR's repeated disregard of the authority of ENGINEER; or

4. CONTRACTOR's violation in any substantial way of any provisions of the Contract Documents.

7.03.2 If one or more of the events identified in Paragraph 7.03.1 occur, OWNER may, after giving CONTRACTOR (and surety) seven days written notice of its intent to terminate the services of CONTRACTOR:

1. exclude CONTRACTOR from the Site, and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment, and machinery at the Site, and

use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversation);

2. incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere; and

3. complete the Work as OWNER may deem expedient.

7.03.4 If OWNER proceeds as provided in Paragraph 7.03.4, CONTRACTOR shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by OWNER arising out of or relating to completing the Work, such excess will be paid to CONTRACTOR. If such claims, costs, losses, and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses, and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and, when so approved by ENGINEER, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, OWNER shall not be required to obtain the lowest price for the Work performed.

7.03.5 Notwithstanding the preceding paragraphs in this section, CONTRACTOR's services will not be terminated if CONTRACTOR begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

7.03.6 Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

7.04 OWNER MAY TERMINATE FOR CONVENIENCE

Upon seven days written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, terminate the Contract. In such case, CONTRACTOR shall be paid for (without duplication of any items);

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others, and

4. reasonable expenses directly attributable to termination.

CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

7.05 CONTRACTOR MAY STOP WORK OR TERMINATE

If, through no act or fault of CONTRACTOR, (i) the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or (ii) ENGINEER fails to act on any Application for Payment within 60 days after it is submitted, or (iii) OWNER fails for 75 days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, suspend performance until OWNER or ENGINEER remedy such suspension or failure.

7.06 MANDATORY VENUE PROVISION. This Contract is entered into and performed in Guadalupe County, Texas, and the CONTRACTOR and OWNER agree that mandatory venue for any legal action related to this contract shall be in the District Courts of Guadalupe County, Texas.

Exhibit A.
Owner's Insurance Requirements of Contractor

1. Specific Insurance Requirements

The following insurance shall be maintained in effect with limits not less than those set forth below at all times during the term of this Agreement and thereafter as required:

Insurance	Coverage/Limits	Other Requirements
Commercial General Liability (Occurrence Basis)	<p>Amounts of coverage shall be no less than:</p> <ul style="list-style-type: none"> ▪ \$1,000,000 Per Occurrence ▪ \$2,000,000 General Aggregate ▪ \$2,000,000 Products/Completed Operations Aggregate ▪ \$1,000,000 Personal And Advertising Injury ▪ Designated Construction Project(s) General Aggregate Limit 	<ul style="list-style-type: none"> ▪ Current ISO edition of CG 00 01 ▪ Additional insured status shall be provided in favor of Owner Parties on a combination of ISO forms CG 20 10 10 01 and CG 20 37 10 01. ▪ This coverage shall be endorsed to provide primary and non-contributing liability coverage. It is the intent of the parties to this Agreement that all insurance coverage required herein shall be primary to and will not seek contribution from any other insurance held by Owner Parties, with Owner Parties' insurance being excess, secondary and non-contributing. ▪ Stop Gap coverage shall be provided if any work is to be performed in a monopolistic workers' compensation state. ▪ The following exclusions/limitations (or their equivalent(s), are prohibited: <ul style="list-style-type: none"> ○ Contractual Liability Limitation CG 21 39 ○ Amendment of Insured Contract Definition CG 24 26 ○ Limitation of Coverage to Designated Premises or Project, CG 21 44 ○ Exclusion-Damage to Work Performed by Subcontractors On Your Behalf, CG 22 94 or CG 22 95 ○ Exclusion-Explosion, Collapse and Underground Property Damage Hazard, CG 21 42 or CG 21 43 ○ Any Classification limitation ○ Any Construction Defect Completed Operations exclusion ○ Any endorsement modifying the Employer's Liability exclusion or deleting the exception to it ○ Any endorsement modifying or deleting Explosion, Collapse or Underground coverage ○ Any Habitational or Residential exclusion applicable to the Work ○ Any "Insured vs. Insured" exclusion except Named Insured vs. Named Insured ○ Any Punitive, Exemplary or Multiplied Damages exclusion ○ Any Subsidence exclusion

Business Auto Liability	<p>Amount of coverage shall be no less than:</p> <ul style="list-style-type: none"> ▪ \$1,000,000 Per Accident 	<ul style="list-style-type: none"> ▪ Current ISO edition of CA 00 01 ▪ Arising out of any auto (Symbol 1), including owned, hired and nonowned
Workers' Compensation and Employer's Liability	<p>Amounts of coverage shall be no less than:</p> <ul style="list-style-type: none"> ▪ Statutory Limits ▪ \$1,000,000 Each Accident and Disease ▪ Alternate Employer endorsement ▪ USL&H must be provided where such exposure exists. 	<ul style="list-style-type: none"> ▪ The State in which work is to be performed must listed under Item 3.A. on the Information Page ▪ Such insurance shall cover liability arising out of the Contractor's employment of workers and anyone for whom the Contractor may be liable for workers' compensation claims. Workers' compensation insurance is required, and no "alternative" forms of insurance shall be permitted. ▪ Where a Professional Employer Organization (PEO) or "leased employees" are utilized, Contractor shall require its leasing company to provide Workers' Compensation insurance for said workers and such policy shall be endorsed to provide an Alternate Employer endorsement in favor of Contractor and Owner. Where Contractor uses leased employees with Workers' Compensation insurance provided by a PEO or employee leasing company, Contractor is strictly prohibited from subletting any of its work without the express written agreement of Owner.
Excess Liability (Occurrence Basis)	<p>Amounts of coverage shall be no less than:</p> <ul style="list-style-type: none"> ▪ \$5,000,000 Each Occurrence ▪ \$5,000,000 Annual Aggregate 	<ul style="list-style-type: none"> ▪ Such insurance shall be excess over and be no less broad than all coverages described above. ▪ Drop-down coverage shall be provided for reduction and/or exhaustion of underlying aggregate limits and shall include a duty to defend any insured.
Professional Liability	<p>Amounts of coverage shall be no less than:</p> <ul style="list-style-type: none"> ▪ \$1,000,000 Each Occurrence ▪ \$2,000,000 Annual Aggregate ▪ If a combined Contractor's Pollution Liability and Professional Liability policy is utilized, the limits shall be \$3,000,000 Each Loss and Aggregate. ▪ Such insurance shall cover all services rendered by the Contractor and its consultants under the Agreement, including but not limited to design or design/build services. ▪ Policies written on a Claims-Made basis shall be maintained for at least two years beyond termination of the Agreement. 	<ul style="list-style-type: none"> ▪ Such insurance shall cover all services rendered by the Contractor and its subcontractors under the Agreement. ▪ This insurance is not permitted to include any type of exclusion or limitation of coverage applicable to claims arising from: <ul style="list-style-type: none"> ○ bodily injury or property damage where coverage is provided in behalf of design professionals or design/build contractors ○ habitational or residential operations ○ mold and/or microbial matter and/or fungus and/or biological substance ○ punitive, exemplary or multiplied damages. ▪ Any retroactive date must be effective prior to beginning of services for the Owner. ▪ Policies written on a Claims-Made basis shall have an extended reporting period of at least two years beyond termination of the Agreement. Vendor shall trigger the extended reporting period if identical coverage is not otherwise maintained with the expiring retroactive date.

<p>Contractors Pollution Liability</p>	<p>Amounts of coverage shall be no less than:</p> <ul style="list-style-type: none"> ▪ \$1,000,000 Each Loss ▪ \$2,000,000 Annual Aggregate ▪ If a combined Contractor's Pollution Liability and Professional Liability policy is utilized, the limits shall be \$3,000,000 Each Loss and Aggregate. ▪ The policy must provide coverage for: <ul style="list-style-type: none"> ○ the full scope of the named insured's operations (on-going and completed) as described within the scope of work for this Agreement ○ loss arising from pollutants including but not limited to fungus, bacteria, biological substances, mold, microbial matter, asbestos, lead, silica and contaminated drywall ○ third party liability for bodily injury, property damage, clean up expenses, and defense arising from the operations; ○ diminution of value and Natural Resources damages ○ contractual liability ○ claims arising from non-owned disposal sites utilized in the performance of this Agreement. 	<ul style="list-style-type: none"> ▪ The policy must insure contractual liability, name Owner Parties as an Additional Insured, and be primary and noncontributory to all coverage available to the Additional Insured. ▪ This insurance is not permitted to include any type of exclusion or limitation of coverage applicable to claims arising from: <ul style="list-style-type: none"> ○ Insured vs. insured actions. However exclusion for claims made between insured within the same economic family are acceptable. ○ impaired property that has not been physically injured ○ materials supplied or handled by the named insured. However, exclusions for the sale and manufacture of products are allowed. Exclusionary language pertaining to materials supplied by the insured shall be reviewed by the certificate holder for approval. ○ property damage to the work performed by the contractor ○ faulty workmanship as it relates to clean up costs ○ punitive, exemplary or multiplied damages ○ work performed by subcontractors ▪ If coverage is provided on a Claims Made basis, coverage will at least be retroactive to the earlier of the date of this Agreement or the commencement of contractor services relation to the Work. ▪ The policy will offer an extended discovery or extended reporting clause of at least three (3) years. ▪ Completed Operations coverage shall be maintained through the purchase of renewal policies to protect the insured and additional insured for at least two (2) years after the property owner accepts the project or this contract is terminated. The purchase of an extended discovery period or an extended reporting period on a Claims Made policy or the purchase of occurrence based Contractors Environmental Insurance will not be sufficient to meet the terms of this provision.
<p>Builders Risk</p>	<ul style="list-style-type: none"> ▪ Coverage shall be provided in an amount equal at all times to the full contract value, including change orders, and cost of debris removal for any single occurrence. ▪ Coverage shall be at least as broad as an unmodified ISO Special form, shall be provided on a completed-value basis, and shall be primary to any other insurance coverage available to the named insured parties, with that other insurance being excess, secondary and non-contributing. ▪ The policy must provide coverage for: 	<ul style="list-style-type: none"> ▪ Insureds shall include Owner, General Contractor, all Loss Payees and Mortgagees, and subcontractors of all tiers in the Work as Insureds. ▪ Such insurance shall cover: <ul style="list-style-type: none"> ○ all structure(s) under construction, including retaining walls, paved surfaces and roadways, bridges, glass, foundation(s), footings, underground pipes and wiring, excavations, grading, backfilling or filling; ○ all temporary structures (e.g., fencing, scaffolding, cribbing, false work, forms, site lighting, temporary utilities and buildings)

<ul style="list-style-type: none"> ○ Agreed Value ○ Damage arising from error, omission or deficiency in construction methods, design, specifications, workmanship or materials, including collapse ○ Debris removal additional limit ○ Earthquake and Earthquake Sprinkler Leakage ○ Flood ○ Freezing ○ Mechanical breakdown including hot & cold testing ○ Ordinance or law ○ Pollutant clean-up and removal ○ Preservation of property ○ Theft • Deductible shall not exceed <ul style="list-style-type: none"> ○ All Risks of Direct Damage, Per Occurrence, except ○ Named Storm ○ Earthquake and Earthquake Sprinkler Leakage, Per Occurrence ○ Flood, Per Occurrence or excess of NFIP if in Flood Zone A or V 	<ul style="list-style-type: none"> Included Included \$1,000,000 \$5,000,000 \$5,000,000 Included Included \$1,000,000 \$ 25,000 Included Included \$10,000 2% subject to \$50,000 minimum \$100,000 \$100,000 	<ul style="list-style-type: none"> located at the site; ○ all property including materials and supplies on site for installation; ○ all property including materials and supplies at other locations but intended for use at the site; ○ all property including materials and supplies in transit to the site for installation by all means of transportation other than ocean transit; and ○ other Work at the site identified in the Agreement to which this Exhibit is attached. • No protective safeguard warranty shall be permitted. • The termination of coverage provision shall be endorsed to permit occupancy of the covered property being constructed. This insurance shall be maintained in effect, unless otherwise provided for the Agreement Documents, until the earliest of: <ul style="list-style-type: none"> ○ the date on which all persons and organizations who are insureds under the policy agree that it shall be terminated; ○ occupancy, in whole or in part; ○ the date on which release of substantial completion is executed; or ○ the date on which the insurable interests of Contractor in the Covered Property has ceased. • A waiver of subrogation provision shall be provided in favor of all insureds.
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2. General Insurance Requirements

A. Definitions. For purposes of this Agreement:

- i. "ISO" means Insurance Services Office.
- ii. "Contractor" shall include subcontractors of any tier.
- iii. "Owner Parties" means (a) City of Rockport ("Owner"), (b) the Project, (c) any lender whose loan is secured by a lien against the Work, (d) their respective shareholders, members, partners, joint venturers, affiliates, subsidiaries, successors and assigns, (e) any directors, officers, employees, or agents of such persons or entities, and (f) others as required by the Construction Documents.

B. Policies.

- i. Contractor shall maintain such General Liability, Excess Liability, Professional and Pollution insurance in identical coverage, form and amount, including required endorsements, for at least two (2) years following Date of Substantial Completion of the Work to be performed under this Agreement. Contractor shall provide written representation to Owner stating Work completion date.
- ii. All policies must:
 - a. Be written through insurance companies authorized to do business in the State in which the work is to be performed and rated no less than A-: VII in the most current edition of A. M. Best's Key Rating Guide at all times Work is to be performed.

- b. Provide a waiver of subrogation in favor of Owner Parties on all insurance coverage carried by Contractor, whether required herein or not.
- c. Contain an endorsement providing for thirty (30) days prior written notice of cancellation to Owner.
- d. Be provided to the Owner Parties in compliance with the requirements herein and shall contain no endorsements that restrict, limit, or exclude coverage required herein in any manner without the prior express written approval of the Owner.
- iii. Failure of any Owner Party to demand such certificate or other evidence of full compliance with these insurance requirements or failure of any Owner Party to identify a deficiency from evidence that is provided shall not be construed as a waiver of the Contractor's obligation to maintain such insurance.
- iv. Contractor shall provide to the Owner a certified copy of all insurance policies required herein within ten (10) days of any such request. Renewal policies, if necessary, shall be delivered to the Owner prior to the expiration of the previous policy.
- v. Commencement of Work without provision of the required certificate of insurance, evidence of insurance and/or required endorsements, or without compliance with any other provision of this Agreement, shall not constitute a waiver by any Owner Party of any rights. The Owner shall have the right, but not the obligation, of prohibiting the Contractor or any subcontractor from performing any Work until such certificate of insurance, evidence of insurance and/or required endorsements are received and approved by the Owner.

C. Limits, Deductibles and Retentions

- i. The limits of liability may be provided by a single policy of insurance or by a combination of primary and excess policies, but in no event shall the total limits of liability available for any one occurrence or accident be less than the amount required herein.
- ii. No deductible or self-insured retention shall exceed \$25,000 without prior written approval of the Owner, except as otherwise specified herein. All deductibles and/or retentions shall be paid by, assumed by, for the account of, and at the Contractor's sole risk. The Contractor shall not be reimbursed for same

D. Forms

- i. If the forms of policies, endorsements, certificates or evidence of insurance required by this Exhibit are superseded or discontinued, Owner will have the right to require other equivalent forms.
- ii. Any policy or endorsement form other than a form specified in this Exhibit must be approved in advance by Owner.

E. Evidence of Insurance. Insurance must be evidenced as follows:

- i. ACORD Form 25 Certificate of Liability Insurance for liability coverages.
- ii. ACORD Form 28 Evidence of Commercial Property Insurance for property coverages.
- iii. Evidence shall be provided to Owner prior to commencing Work and prior to the expiration of any required coverage.
- iv. ACORD Forms specify:
 - a. Owner as certificate holder at Owner's mailing address;
 - b. Insured's name, which must match that on this Agreement;
 - c. Insurance companies producing each coverage and the policy number and policy date of each coverage;
 - d. Producer of the certificate with correct address and phone number and have the signature of the authorized representative of the producer;
 - e. Additional Insured status in favor of Owner Parties;
 - f. Amount of any deductible or self-insured retention in excess of \$25,000;
 - g. Designated Construction Project(s) General Aggregate Limit;
 - h. Primary and non-contributory status;
 - i. Waivers of subrogation; and
 - j. All exclusions and limitations added by endorsement to the General Liability coverage. This can be achieved by attachment of the Schedule of Forms and Endorsements page.
- v. Copies of the following shall also be provided:
 - a. General Liability Additional insured endorsement(s);
 - b. General Liability Schedule of Forms and Endorsements page(s); and
 - c. 30 Day Notice of Cancellation endorsement applicable to all required policies.

F. Contractor Insurance Representations to Owner Parties

- i. It is expressly understood and agreed that the insurance coverages required herein (a) represent Owner Parties' minimum requirements and are not to be construed to void or limit the Contractor's indemnity obligations as contained in this Agreement nor represent in any manner a determination of the insurance coverages the Contractor should or should not maintain for its own protection; and (b) are being, or have been, obtained by the Contractor in support of the Contractor's liability and indemnity obligations under this Agreement. Irrespective of the requirements as to insurance to be carried as provided for herein, the insolvency, bankruptcy or failure of any insurance company carrying insurance of the Contractor, or the failure of any insurance company to pay claims accruing, shall not be held to affect, negate or waive any of the provisions of this Agreement.
- ii. Failure to obtain and maintain the required insurance shall constitute a material breach of, and default under, this Agreement. If the Contractor shall fail to remedy such breach within five (5) business days after notice by the Owner, the Contractor will be liable for any and all costs, liabilities, damages and penalties resulting to the Owner Parties from such breach, unless a written waiver of the specific insurance requirement(s) is provided to the Contractor by the Owner. In the event of any failure by the Contractor to comply with the provisions of this Agreement, the Owner may, without in any way compromising or waiving any right or remedy at law or in equity, on notice to the Contractor, purchase such insurance, at the Contractor's expense, provided that the Owner shall have no obligation to do so and if the Owner shall do so, the Contractor shall not be relieved of or excused from the obligation to obtain and maintain such insurance amounts and coverages.
- iii. This Exhibit is an independent contract provision and shall survive the termination or expiration of the Construction Agreement.

G. Insurance Requirements of Contractor's Subcontractors

- i. Insurance similar to that required of the Contractor shall be provided by all subcontractors (or provided by the Contractor on behalf of subcontractors) to cover operations performed under any subcontract agreement. The Contractor shall be held responsible for any modification in these insurance requirements as they apply to subcontractors. The Contractor shall maintain certificates of insurance from all subcontractors containing provisions similar to those listed herein (modified to recognize that the certificate is from subcontractor) enumerating, among other things, the waivers of subrogation, additional insured status, and primary liability as required herein, and make them available to the Owner upon request.
- ii. The Contractor is fully responsible for loss and damage to its property on the site, including tools and equipment, and shall take necessary precautions to prevent damage to or vandalism, theft, burglary, pilferage and unexplained disappearance of property. Any insurance covering the Contractor's or its subcontractor's property shall be the Contractor's and its subcontractor's sole and complete means or recovery for any such loss. To the extent any loss is not covered by said insurance or subject to any deductible or co-insurance, the Contractor shall not be reimbursed for same. Should the Contractor or its subcontractors choose to self insure this risk, it is expressly agreed that the Contractor hereby waives, and shall cause its subcontractors to waive, any claim for damage or loss to said property in favor of the Owner Parties.

H. Use of the Owners Equipment

The Contractor, its agents, employees, subcontractors or suppliers shall use the Owners equipment only with express written permission of the Owners designated representative and in accordance with the Owners terms and condition for such use. If the Contractor or any of its agents, employees, subcontractors or suppliers utilize any of the Owners equipment for any purpose, including machinery, tools, scaffolding, hoists, lifts or similar items owned, leased or under the control of the Owner, the Contractor shall defend, indemnify and be liable to the Owner Parties for any and all loss or damage which may arise from such use.

I. Release and Waiver

The Contractor hereby releases, and shall cause its subcontractors to release, the Owner Parties from any and all claims or causes of action whatsoever which the Contractor and/or its subcontractors might otherwise now or hereafter possess resulting in or from or in any way connected with any loss covered by insurance, whether required herein or not, or which should have been covered by insurance required herein, including the deductible and/or uninsured portion thereof,

maintained and/or required to be maintained by the Contractor and/or its subcontractors pursuant to this Agreement. **THE FOREGOING RELEASE AND WAIVER APPLY EVEN IF THE LOSS OR DAMAGE IS CAUSED IN WHOLE OR IN PART BY THE FAULT OR NEGLIGENCE OR STRICT LIABILITY OF THE OWNER PARTIES.**

PREVAILING WAGE DECISION

General Decision Number: TX140016 01/03/2014 TX16

Superseded General Decision Number: TX20130016

State: Texas

Construction Types: Heavy and Highway

Counties: Atascosa, Bandera, Bastrop, Bell, Bexar, Brazos, Burleson, Caldwell, Comal, Coryell, Guadalupe, Hays, Kendall, Lampasas, McLennan, Medina, Robertson, Travis, Williamson and Wilson Counties in Texas.

HEAVY (excluding tunnels and dams, not to be used for work on Sewage or Water Treatment Plants or Lift / Pump Stations in Bell, Coryell, McClellon and Williamson Counties) and HIGHWAY Construction Projects

Modification Number	Publication Date
0	01/03/2014

* SUTX2011-006 08/03/2011

	Rates	Fringes
CEMENT MASON/CONCRETE		
FINISHER (Paving and Structures).....	\$ 12.56	
ELECTRICIAN.....	\$ 26.35	
FORM BUILDER/FORM SETTER		
Paving & Curb.....	\$ 12.94	
Structures.....	\$ 12.87	
LABORER		
Asphalt Raker.....	\$ 12.12	
Flagger.....	\$ 9.45	
Laborer, Common.....	\$ 10.50	
Laborer, Utility.....	\$ 12.27	
Pipelayer.....	\$ 12.79	
Work Zone Barricade		
Servicer.....	\$ 11.85	
PAINTER (Structures).....	\$ 18.34	
POWER EQUIPMENT OPERATOR:		
Agricultural Tractor.....	\$ 12.69	
Asphalt Distributor.....	\$ 15.55	
Asphalt Paving Machine.....	\$ 14.36	
Boom Truck.....	\$ 18.36	
Broom or Sweeper.....	\$ 11.04	
Concrete Pavement		
Finishing Machine.....	\$ 15.48	

Crane, Hydraulic 80 tons or less.....	\$ 18.36
Crane, Lattice Boom 80 tons or less.....	\$ 15.87
Crane, Lattice Boom over 80 tons.....	\$ 19.38
Crawler Tractor.....	\$ 15.67
Directional Drilling Locator.....	\$ 11.67
Directional Drilling Operator.....	\$ 17.24
Excavator 50,000 lbs or Less.....	\$ 12.88
Excavator over 50,000 lbs...	\$ 17.71
Foundation Drill, Truck Mounted.....	\$ 16.93
Front End Loader, 3 CY or Less.....	\$ 13.04
Front End Loader, Over 3 CY.	\$ 13.21
Loader/Backhoe.....	\$ 14.12
Mechanic.....	\$ 17.10
Milling Machine.....	\$ 14.18
Motor Grader, Fine Grade....	\$ 18.51
Motor Grader, Rough.....	\$ 14.63
Pavement Marking Machine....	\$ 19.17
Reclaimer/Pulverizer.....	\$ 12.88
Roller, Asphalt.....	\$ 12.78
Roller, Other.....	\$ 10.50
Scraper.....	\$ 12.27
Spreader Box.....	\$ 14.04
Trenching Machine, Heavy....	\$ 18.48
 Servicer.....	\$ 14.51
 Steel Worker	
Reinforcing.....	\$ 14.00
Structural.....	\$ 19.29
 TRAFFIC SIGNAL INSTALLER	
Traffic Signal/Light Pole Worker.....	\$ 16.00
 TRUCK DRIVER	
Lowboy-Float.....	\$ 15.66
Off Road Hauler.....	\$ 11.88
Single Axle.....	\$ 11.79
Single or Tandem Axle Dump Truck.....	\$ 11.68
Tandem Axle Tractor w/Semi Trailer.....	\$ 12.81
 WELDER.....	\$ 15.97

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters, PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rates.

0000/9999: weighted union wage rates will be published annually each January.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union majority rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor

200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

SECTION I
GENERAL INFORMATION

I.1. **SCOPE OF WORK**

The work to be done under this contract includes the furnishing of all superintendence, labor, material, transportation, tools, supplies, plant equipment and appurtenances necessary for the complete construction of all improvements herein described and shown on the plans which are made a part of these specifications.

I.2. **PERMITS, CERTIFICATES, LAWS AND ORDINANCES**

The Contractor shall, at his own expense, procure any and all permits, certificates and licenses required of him by law for the execution of his work. The Owner will furnish permits from the Texas Department of Highways and Public Transportation and railroad companies for crossing their properties with utility extensions if such are required.

I.3. **MANUFACTURER'S CERTIFICATES**

All manufacturers' certificates required herein are to be furnished by the Contractor at his own expense.

I.4. **BOUNDARIES OF WORK**

The Owner will provide land and rights-of-way for the work specified in this contract and make suitable provisions for ingress and egress and the Contractor shall not enter on or occupy with men, tools, equipment, or materials, any ground outside the property of the Owner without the written permission of the Owner of such ground. Other contractors and employees or agents of the Owner may for all necessary purposes enter upon the work and premises used by the Contractor, and the Contractor shall conduct his work so as not to impede unnecessarily any work being done by others on or adjacent to the site.

I.5. **PROTECTION OF THE SITE**

The Contractor shall protect all structures, walks, pipelines, trees, shrubbery, lawns and other improvements during the progress of his work and shall remove from the site all debris and unused materials.

I.6. **TESTING OF MATERIALS**

All testing of materials required under these specifications shall be performed by an approved agency for testing materials. The Contractor shall make the nomination of the laboratory and the payment for such services. The Contractor will pay for any retest required because of failure of the initial test.

I.7. REJECTED MATERIALS

All materials which have been rejected or condemned by the Inspector shall be immediately removed from the site of the work.

I.8. DETAIL PLANS

Detail plans for construction are furnished herewith and made a part of these specifications, the same as if they were written herein.

I.9. EXAMINATION OF SITE OF THE PROJECT

Prospective Contractors shall make a careful examination of the site of the project, soil and water conditions to be encountered, improvements to be protected, disposal sites for surplus material not designated to be salvage materials, and as to methods of providing ingress and egress to private properties.

I.10. QUANTITIES

The quantities of each item on the bid proposal blank represent the approximate amount of work to be done. Final quantities actually built will be determined and paid for by actual measurements on the ground of the final work completed. No incidental items of work will be paid for unless there appears an item in the proposal for such work. It must be strictly understood that the prices bid are for complete and acceptable work.

I.11. FAILURE TO COMPLETE ON TIME

The time of completion is the essence of the contract. For each calendar day that any work shall remain uncompleted after the time specified in the proposal and the contract, or the increased time granted by the Owner, or as automatically increased by additional work or materials ordered after the contract is signed, the sum per day given in the following schedule will be deducted from the monies due the Contractor, not as a penalty but as liquidated damages.

<u>Amount of Contract</u>		<u>Amount of Liquidated Damages per Day</u>
Less than	\$ 500,000	\$ 500.00
500,000 to	750,000	600.00
750,000 to	1,000,000	800.00
Over	1,000,000	1,000.00

Prior to commencing construction of the project, the Contractor shall furnish for approval to the Engineer and Owner a tentative construction schedule showing the Contractor's intended sequence of work together with approximate dates for commencing and completing the principle units of work.

This sum of money thus deducted for such delay, failure or noncompletion is not to be considered as a penalty, but it shall be deemed, taken and treated as reasonable liquidated damages, since it would be impractical and extremely difficult to fix the actual damages and the Owner may withhold from the Contractor's compensation such sum as liquidated damages.

I.12. TREE DAMAGES

The protection of existing trees within the right-of-way and on private property is the essence of the contract. For each tree that any work shall damage or destroy, the amount per tree shall be \$500.00. This will be deducted from the monies due the Contractor, not as a penalty but as liquidated damages. In addition the Contractor shall replace the tree with a caliper-inch to caliper-inch replacement.

This sum of money thus deducted for such failure to protect the trees is not to be considered as a penalty, but it shall be deemed, taken and treated as reasonable liquidated damages, since it would be impractical and extremely difficult to fix the actual damages and the Owner may withhold from the Contractor's compensation such sum as liquidated damages.

I.13. MATERIALS

The Contractor shall furnish all materials for a complete job as shown on the plans and as required by the specifications.

I.14. EXISTING UTILITIES

Existing surface and subsurface structures (gas mains, water mains, sewer mains, storm sewers, telephone cables, etc.) are shown on the plans if their location has been determined, but it shall be the responsibility of the Contractor to avoid damaging these existing structures whether or not they are shown on the plans. The Owner and Engineer assume no responsibility for failure to show any or all of the structures on the plans or to show them in their exact location. It is mutually agreed that such failure to show these structures will not be considered sufficient basis for claims for additional compensation for extra work or for increasing the pay quantities in any manner whatsoever. If any structure is damaged by the Contractor it shall be his responsibility to repair the damage at his own expense and restore the structure to its functional use.

Contractor shall locate and determine (verify if depth is shown on plans) elevation of all existing underground utilities a minimum of 500 feet ahead of trenching. If a utility is found to be in conflict with proposed grades, the Engineer shall be contacted and grades adjusted to avoid conflict. **No separate pay.**

I.15. COMPETENT WORKERS

The Contractor shall employ only competent workers for the execution of this work and all such work shall be performed under the direct supervision of an experienced superintendent. The superintendent must be a direct employee of the Contractor.

I.16. TERMINATION OF CONTRACT IN CASE OF NATIONAL EMERGENCY

Whenever, because of a national emergency so declared by the President of the United States or other lawful authority, it becomes impossible for the Contractor to obtain all of the necessary labor, material and equipment for the prosecution of the work with reasonable continuity for a period of two months, the Contractor shall within seven days notify the Owner in writing, giving a detailed statement of the efforts which have been made and listing all necessary items of labor, material and equipment not obtainable. If after investigation, the Owner finds that such conditions exist and that the inability of the Contractor to proceed is not attributable in whole or in part to the fault or neglect of the Contractor, then if the Owner cannot after reasonable effort assist the Contractor in procuring and making available the necessary labor, materials, and equipment within thirty days, the Contractor may request the Owner to terminate the contract and the Owner shall within thirty days comply with the request, and the termination shall be based on a final settlement, which shall include, but not be limited to, the payment for all work executed.

I.17. WATER

Water required for water jetting, flooding, testing and construction will be provided by Owner at no cost to the Contractor. The Contractor shall provide temporary water piping, valves, transportation, etc. to the project location as required.

I.18. COPIES OF PLANS AND SPECIFICATIONS

Four (4) sets of the Plans and the Specifications shall be furnished to the Contractor, without charge, for construction purposes. Additional copies may be obtained from the Engineer at actual reproduction cost. One (1) additional set of plans shall be marked and returned to the Engineer as "RECORD" drawings.

I.19. MATERIALS AND WORKMANSHIP

The Contractor shall furnish all materials for a complete job as shown on the plans and as required by the specifications.

No material which has been used by the Contractor for any temporary purpose whatever is to be incorporated in the permanent structure without written consent of the Engineer.

Where materials or equipment are specified by a trade or brand name, it is not the intention of the Owner to discriminate against an equal product or another manufacturer, but rather to set a definite standard of performance and to establish an equal basis for the evaluation of

bids. Where the words "equivalent", "proper", or "equal to" are used, they shall be understood to mean that the article or process is equal, in the opinion or judgment of the Engineer, to the article or process specified by name. Unless otherwise specified, all materials shall be the best of their respective kinds and shall be in all cases fully equal to approved samples. Notwithstanding that the words "or equal to" or other such expressions are used in the specifications, the material, manufactured article or process specifically designated shall be used unless a substitute shall be approved in writing by the Engineer, and the Engineer shall have the right to require the use of such specifically designated material, article or process.

The Contractor should note that his bid will be based on the material, manufactured article or process specifically designated in the specifications.

I.20. ABBREVIATIONS

Wherever the abbreviations defined herein occur on the plans, in the specifications, contract, bonds, advertisement, proposal, or in any other document or instrument herein contemplated or to which the specifications apply or may apply, the intent and meaning shall be as follows:

A.A.S.H.O.	American Association of State Highway Officials	In. or "	Inch or Inches
A.S.T.M.	American Society for Testing Materials	Lin.	Linear
A.W.W.A.	American Water Works Association	Lb.	Pound
Asph.	Asphalt	M.H.	Manhole
Ave.	Avenue	Max.	Maximum
Blvd.	Boulevard	Min.	Minimum
D.I.	Ductile Iron	Mono.	Monolithic
C.L.	Centerline	No.	Number
C.O.	Cleanout	%	Percent
Conc.	Concrete	P.S.I.	Pounds per square inch
Cond.	Conduit	P.V.C.	Polyvinyl Chloride
Corr.	Corrugated	Reinf.	Reinforced
Cu.	Cubic	Rem.	Remove
Culv.	Culvert	Rep.	Replace
Dia.	Diameter	R/W. or	
Dr.	Drive or Driveway	R of W	Right-of-Way
Elev.	Elevation	Sani.	Sanitary
F.	Fahrenheit	Sq.	Square
Ft. or '	Foot or Feet	Std.	Standard
Gal.	Gallon	St.	Street or Storm
		Str.	Strength
		Vol.	Volume
		Yd.	Yard

In reference to such abbreviations as A.S.T.M., A.W.W.A., etc. where a specification number is referred to, the latest revision of said specification shall apply.

I.21. PREVAILING WAGE RATES

The Contractor shall pay to all laborers, workmen and mechanics employed by him in the execution of the contract, not less than the rate as determined by the US Department of Labor in accordance with the Davis-Bacon Act. For reference purposes, a copy of the US Department of Labor wage decision herein this specifications.

I.22. REFERENCE SPECIFICATIONS

Where reference is made in these specifications to specifications compiled by other agencies, organizations, or departments, such reference is made for expediency and standardization from the material suppliers' point of view, and such specifications referred to are hereby made a part of these specifications.

Whenever reference is made to the furnishing of materials or testing thereof to conform to the Standards of any technical society, organization, or body, it shall be construed to mean the latest standard, code, specification, or tentative specification adopted and published at the time of advertisement for bids, even though reference has been made to an earlier standard, and such standards are made a part hereof to the extent which is indicated or intended.

The following are names and abbreviations of such groups:

AASHO	American Association of State Highway Officials
ACI	American Concrete Institute
AGMA	American Gear Manufacturers Association
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
API	American Petroleum Institute
AREMA	American Railway Engineering and Maintenance-of-Way Association
ASCE	American Society of Civil Engineers
ASA	American Standards Association
ASHE	American Society of Heating & Ventilating Engineers
ASTM	American Society for Testing Materials
ASME	American Society of Mechanical Engineers
AWSC	American Welding Society Code
AWPA	American Wood Preservers Association
AWWA	American Water Works Association

FED. SPEC.	Federal Specification
NAVY SPEC.	Navy Department Specification
NEC	National Electric Code
NEMA	National Electrical Manufacturer's Association
SAE	Society of Automotive Engineers Standards
SHBI	Steel Heating Boiler Institute
U.L., INC.	Underwriters' Laboratories, Incorporated

Where no reference is made to a code, standard, or specification, the Standard Specifications of the ASTM, the ASA, the ASME, the AIEE, or the NEMA shall govern.

I.23. INCIDENTAL ITEMS

Contractors are especially notified that no incidental items of work will be paid for unless there appears an item in the proposal for such work. It must be strictly understood that the prices bid are for complete and acceptable work.

I.24. PROTECTION AGAINST ACCIDENT TO EMPLOYEES AND THE PUBLIC

The Contractor and his sureties shall indemnify and save harmless the Engineer, the Owner, and all their officers, agents, and employees from all suits, actions, or claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person or persons or property, on account of any negligent act or fault of Contractor, his agents or employees in the execution of said contract; or on account of the failure of the Contractor to provide necessary barricades, warning lights or signs, or the failure to take any other necessary precautions to prevent injury to persons or damage to property, and will be required to pay any judgment, with costs and attorney fees, which may be obtained against the Engineer and/or Owner growing out of such injury or damage.

I.25. PUBLIC UTILITIES AND OTHER PROPERTY

In case it is necessary to change or move the property of Owner or of a public utility, such property shall not be moved or interfered with until ordered to do so by the Engineer and Owner. The right is reserved to the Engineer of public utilities to enter upon the limits of the project for the purposed of making such changes or repairs of their property that may be made necessary by performance of this contract.

I.26. POWER FOR CONSTRUCTION

The electrical service to the site will be provided by the Contractor. The Contractor shall furnish and install all necessary temporary wiring, and furnish and install area distribution boxes so located that the individual trades may use their own construction type extension

cords to obtain adequate power and artificial lighting at all points where required by inspectors and for safety. All necessary permits shall be acquired by the Contractor.

I.27. USE OF EXPLOSIVES

Use of explosives will not be allowed.

I.28. MANUFACTURED PRODUCTS

All equipment of standard manufacture specified herein shall be the manufacturer's latest and proven design. Specifications and drawings call attention to certain features but do not purport to cover all details entering into the design of the products or systems. The completed product or system shall be compatible with the functions required and the equipment furnished by the Contractor.

I.29. PATENTED DEVICES

If the manufacturer of any material, process, or manufactured product used in the construction of this project is required or desires to use any design, device, materials, or process covered by letters, patent, or copyright, the manufacturer shall provide for such use by suitable legal agreement with the patentee or Engineer and Owner and the prices bid hereunder shall, without exception, indemnify and save the Engineer and Owner harmless from any and all claims for infringement by reason of the use of any such patented design, device, material, or process, or trade mark or copyright used in connection with any equipment to be furnished under this contract.

I.30. TOOLS AND ACCESSORIES

The Contractor shall, unless otherwise stated in the detailed specifications, furnish with each type, kind, or size of equipment, one (1) complete set of suitably marked high grade tools and appliances which may be needed to adjust, operate, maintain, or repair the equipment.

Such tools and appliances shall be furnished in approved painted steel cases, properly labeled and equipped with good grade cylinder locks and duplicate keys.

Spare parts shall be furnished as specified in the specific provisions or contract items.

Each piece of equipment shall be provided with a substantial name plate securely fastened in place and clearly inscribed with the manufacturer's name, year of manufacture, and principal rating data.

I.31. COORDINATION WITH OTHERS

In the event other contractors are doing work in the same area simultaneously with this project, the Contractor shall coordinate his proposed construction with that of the other contractors.

Likewise, the operations of the Owner must continue without undue interruption, and the Contractor shall schedule and coordinate his work to provide for the least possible inconvenience to the Owner.

I.32. LAND FOR CONSTRUCTION PURPOSES

The Contractor will be permitted to use available land belonging to the Owner, on or near the site of the Work, for construction purposes and for storage of materials and equipment, if available.

The Contractor shall immediately move stored materials or equipment if any occasion arises, as determined by the Owner, requiring access to the storage area. Materials or equipment shall not be placed on the property of the Owner until the Engineer or Owner has agreed to the location to be used for storage.

I.33. REFERENCE STANDARDS

Reference to standards, specifications, manuals or codes of any technical society, organization, or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual code, or laws or regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard, specification, manual, or code, (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the Owner, Contractor, or Engineer, or any of their Consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to Engineer and Owner, or any of the their consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or performance of the Work.

I.34. SITE ADMINISTRATION

The Contractor shall be responsible for all areas of the site used by it, and by all Subcontractors in the performance of the Work. The Contractor will exert full control over the actions of all employees and other persons with respect to the use and preservation of property and existing facilities, except such controls as may be specifically reserved to the Owner or others. The Contractor has the right to exclude from the site all persons who have no purpose related to the Work or its inspection, and may require all persons on the site (except Owner's employees) to observe the same regulations as the Contractor requires of its employees.

I.35. SUBSTITUTE EQUIPMENT AND "OR EQUAL" ITEMS

The technical specifications specify equipment brands, which have been used as the basis of design for this project.

Allowance of substitute equipment does not constitute a waiver of the specifications. The Engineer reserves the right to decide whether or not the proposed substitution will be accepted.

In order that the Engineer may determine if the proposed substitute item is a satisfactory alternate to that specified, three (3) sets of drawings, specifications, full descriptive material, installation list and a detailed list of the equipment proposed shall be submitted to the Engineer for approval. The following shall also be submitted:

1. Name, address, contact and phone number of similar projects on which product was used and date of installation.
2. For construction methods:
 - a. Detailed description of proposed methods including required modifications to structures (concrete, piping, etc.).
 - b. Drawings illustrating methods.
3. Itemized comparison of proposed substitution with product or method specified to include a list of all deviations from product or method specified.
4. Data relating to changes in construction schedule.

In making request for substitution, Contractor represents:

1. He has personally investigated proposed product or method and determined that it is equal or superior in all respects to the specified product or method.
2. He will provide the same guarantee for substitution as for product or method specified.
3. He will coordinate installation of accepted substitution into work, making such changes as may be required for work to be complete in all respects.
4. He waives all claims for additional costs related to substitution, which consequently becomes apparent.

Substitutions will not be considered if:

1. They are indicated or implied on Shop Drawings or project data submittals without a formal request being first submitted and approved.
2. Acceptance will require substantial revision of Contract Documents.

Should the Contractor furnish an approved substitute unit, he shall notify in writing the Engineer office of **all dimensional, mechanical, electrical and structural changes and/or**

requirements for the unit's use and shall reimburse the Engineer for any associated redesign and/or construction drawings. He shall include in his bid, the additional construction costs of mechanical, architectural, structural, electrical and engineering costs of that unit. Redesign and drawing revisions will be prepared by the Engineer. The Contractor (Supplier) shall pay the Engineer for such redesign cost. The bid shall also include any paid-up licenses necessary for the use of the equipment, if required by the manufacturer.

Reimbursement shall be based on engineering direct labor cost plus indirect labor cost plus any direct non-labor expenses such as travel or per diem plus profit of the above total.

Whenever a material or article is specified or described by using the name of a proprietary product or the name of a particular manufacturer or vendor, the specified item shall be understood as establishing the type, function, and quality desired. Unless the specification states that no equivalent or "or equal" item is permitted, other manufacturers' products will be accepted, provided sufficient information is submitted to allow the Engineer to determine that the products proposed are equivalent to those named. Such items shall be submitted for review by the procedure set forth in the submittals section.

Requests for review of equivalency will not be accepted from anyone except the Contractor.

I.36. PROJECT ACCESS

Access to the project is limited to the boundaries shown on the plans. If additional access is required or desired it shall be acquired by the Contractor, with written approval from the affected property owners being provided to the Owner. Such approval shall be received by the Owner prior to use of additional access areas. Contractor shall be responsible for all street repairs necessary for use of unapproved streets.

I.37. PUBLIC UTILITIES AND OTHER PROPERTY

In case it is necessary to change or move the property of the Owner or of a public utility, such property shall not be moved or interfered with until authorized by the utility company, Owner, or Engineer.

It will be the Contractor's responsibility to contact the proper authority, and set up a field meeting to verify by uncovering of the utility and determine the location and elevation of each major utility described above, at least two weeks prior to crossing the utility. If field conditions vary from those shown on the contract plans, the Contractor shall notify the Engineer immediately of field conditions to be encountered, so sufficient time exists to make any necessary adjustments in line or grade. Failure by the Contractor to make proper and timely verification of the above described utilities shall be justification for rejection of claim for extra cost by the Contractor.

If, after field verification, it is necessary to change or move the property of a property owner or of a public utility, seven (7) days notice shall be given before such change, and such property shall not be moved or interfered with until authorized by the property owner or the

utility company. The right is reserved to the property owner or public utilities to enter upon the limits of the project for the purpose of making such changes or repairs of their property that may be made necessary by the performance of this contract.

I.38. POLLUTION CONTROL

Contractor shall prevent the release of sanitary wastes, sediment, debris and other substances resulting from construction activities. No sanitary wastes will be permitted to enter any drain or watercourse other than sanitary sewers. No sediment, debris or other substance will be permitted to enter sanitary sewers and reasonable measures will be taken to prevent such materials from entering any drain or watercourse.

I.39. CONTRACTOR'S WARRANTY OF TITLE

Contractor warrants and guarantees that title to all work, materials, and equipment covered by any Application for Payment, whether incorporated in the project or not, will pass to Owner at the time of payment free and clear of all liens, claims, security interests, and encumbrances.

I.40. CONTRACTOR'S CONTINUING OBLIGATION

Contractor's obligation to perform the work and complete the project in accordance with the Contract Documents shall be absolute. Neither recommendations of any progress or final payment by Owner, nor the issuance of a certificate of Substantial Completion, nor any payment by Owner to Contractor under the Contract Documents nor any use or occupancy of the project or any part thereof by Owner, nor any act of acceptance by Owner nor any failure to do so, nor any correction of defective work by Owner shall constitute an acceptance of work not in accordance with the Contract Documents.

I.41. QUALITY CONTROL

General:

1. Contractor shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents. The Contractor is solely responsible for maintaining that the quality of work is in accordance with the Contract Documents. The Contractor shall be responsible for the notification and scheduling required to ensure that a certified technician from the testing laboratory is present during all sampling and testing procedures required in the Contract Documents. The Contractor shall not proceed with construction work requiring such testing without the presence of the laboratory's certified technician. The Owner, at his option, may perform additional tests as quality monitoring. Quality monitoring activities of the Owner and Engineer, or failure on the part of the Owner or Engineer to perform tests on constructed works, in no way relieves the Contractor of the obligation to perform work and furnish materials conforming to the Contract Documents.

Contractor's Responsibilities:

1. Control the quality of work produced and verify that the work performed meets the standards of quality established in the Contract Documents.
 - a. Inspect and verify conformance of all materials furnished and work performed, whether by the Contractor, its subcontractors or its suppliers.
 - b. Provide and pay for the services of a testing laboratory approved by Engineer to insure that products proposed for use fully comply with the Contract Documents.
 - c. Perform tests as indicated in this and other sections of the specifications. Schedule the time and sequence of testing with the Owner and Engineer. Testing is to be observed by the Engineer or Owner.
 - d. Promptly replace any defective materials and/or construction work incorporating defective materials or workmanship.
 - e. Provide Certified Test Reports as required. Reports are to indicate that materials and construction are in compliance with the Contract Documents.
2. Assist the Owner, and Owner's testing organization to perform quality monitoring activities.

Quality Monitoring Activities by Engineer:

1. Quality Monitoring activities of the Owner through their own forces or through contracts with materials testing laboratories and survey crews are for the Owner's use in monitoring the results of the Contractor's work and quality control activities, if deemed necessary by the Owner.
2. The Quality Monitoring activities of the Owner DO NOT relieve the Contractor of its responsibility to provide testing in accordance with the requirements of the Contract Documents or to provide materials and construction work complying with the Contract Documents.

Submittals:

1. Submittals shall be in accordance with Section B – SPECIAL INSTRUCTIONS and shall include:
 - a. The name of the proposed primary and secondary testing laboratories along with documentation of qualifications, a list of tests that can be performed, and a list of the certified laboratory technicians and the licensed engineers who will be performing the sampling and testing for the Construction Work along with their certifications and licenses.

- b. Test reports per Test Reports Paragraph of this supplementary condition.

Standards:

1. Provide a testing laboratory that complies with the ASTM (American Society of Testing Materials) and/or ACIL (American Council of Independent Laboratories) "Recommended Requirements for Independent Laboratory Qualifications", or other specified testing organizations.
2. Perform tests listed in the specifications.

Delivery and Storage:

1. Handle and protect test specimens of products and construction materials at the construction site in accordance with ASTM or other applicable testing procedures.

Verification Testing:

1. Provide verification testing when tests performed by the Owner indicate that materials or the results of construction activities are not in conformance with Contract Documents.
2. Verification testing is to be provided at the Contractor's expense to verify products or constructed works are in compliance after corrections have been made.
3. Tests must comply with recognized methods or with methods recommended by the Engineer's testing laboratory and approved by the Engineer and Owner.

Test Reports:

1. Test reports are to be prepared for all tests.
 - a. Tests performed by testing laboratories may be submitted on their standard test report forms. These reports must include the following:
 - i. Name of the Owner, project title and number, equipment installer and general contractor.
 - ii. Name of the laboratory, address, and telephone number.
 - iii. Name and signature of the certified laboratory personnel performing the sampling and testing.
 - iv. Date and time of sampling, inspection, and testing.
 - v. Date the report was issued.
 - vi. Description of the test performed.
 - vii. Weather conditions and temperature at time of test or sampling.
 - viii. Location at the site or structure where the test was taken.
 - ix. Standard or test procedure used in making the test.
 - x. A description of the results of the test.
 - xi. Statement of compliance or non-compliance with Contract Documents.

xii. Interpretations of test results, if appropriate.

2. Distribute copies of the test reports to:

	<u>No. of Copies</u>
Owner	2
Engineer	1
Contractor	1

Non-Conforming Work:

1. Contractor shall promptly correct any work that is not in compliance with the Contract Documents and shall immediately notify the Engineer and Owner when the corrective work will be performed.
2. Payment for non-conforming work shall be withheld until such work is corrected or replaced with work complying with the Contract Documents.

I.42. DOCUMENTATIONS TO ACCOMPANY APPLICATIONS FOR PAYMENT

Contractor's Applications for Payment shall be accompanied by the documentation specified herein:

1. Materials and Equipment:
 - a. If payment is required for materials and equipment not incorporated in the work but delivered and suitably stored at the site, the Application for Progress Payment shall be accompanied by invoices and such data, satisfactory to Engineer, as will establish Owner's title to the material and equipment and protect his interest therein, including applicable insurance.
 - b. Payments for such materials and equipment shall be based only upon the actual cost of the materials and equipment to Contractor and shall not include any overhead or profit to Contractor.
 - c. Failure to properly store materials and equipment will be cause to withhold payment for those materials and pieces of equipment.
 - d. Non-receipt of operation and maintenance manuals, as required, will be cause for Owner to withhold partial payment for that particular piece of equipment. See individual specifications for required operation and maintenance manuals.
2. Schedules and Data:
 - a. Each Application for Progress Payment shall be accompanied by Contractor's updated schedule of operations, or progress report, with such shop drawings schedules, procurement schedules, value of material on hand included in application, and other data specified or reasonably required by Engineer. An updated cash flow schedule shall accompany

each partial payment request.

I.43. CONSTRUCTION IN PUBLIC ROADS

Contractor will be responsible for complying with all federal, State, County and City regulations pertaining to construction in public roadway and traffic safety. No public road shall be entirely closed overnight. It shall be the responsibility of the Contractor to build and maintain all weather bypasses and detours, if necessary, and to properly light, barricade and mark all bypasses and detours that might be required on and across the roads involved in the work included in this contract.

The Contractor shall make every effort to complete construction and allow immediate access to adjacent property at driveway entrances located along the roads. Owners or tenants of improvements where access and/or entrance drives are located shall be notified at least 24 hours prior to the time the construction will be started at their drive-ins or entrances, and the Contractor shall provide temporary ingress to entrance drives where necessary. The Contractor shall be responsible for all road and entrance reconstruction and repairs and maintenance for same for a period of one year from the date of acceptance of the project.

In addition to roads and entrances cut by construction excavation, if any other roads or streets in the area are used by the Contractor or Subcontractors during the progress of construction and are damaged by the Contractor in the opinion of the Engineer, the Contractor, when directed by the Owner, shall immediately repair such damage. In the event the repairs and maintenance are not made in a reasonable period of time and it becomes necessary for the County, City or Engineer to make such repairs, the Contractor shall reimburse the County, City or Engineer for the cost of such repairs.

The Contractor shall, at all times, keep a sufficient width of the roadway clear of dirt and other materials to allow the free flow of traffic on the project site. The Contractor shall assume any and all responsibility for damage, personal or otherwise, that may be caused by the construction along roads or private drives.

I.44. PRELIMINARY FIELD TESTS

As soon as conditions permit, the Contractor shall furnish all labor, materials, and instruments and shall make preliminary field tests of equipment. If the preliminary field tests disclose any equipment furnished under this contract which does not comply with the requirements of the contract documents, the Contractor shall, prior to the acceptance tests, make all changes, adjustments, and replacements required.

Equipment which is subject to a "start-up" will be paid at 95% of the schedule of values amount, less retainage, when construction of the equipment is complete. The remaining five (5%) percent will be paid when the equipment is placed in service. Retainage will be released as per the Final Payment terms.

I.45. FINAL FIELD TESTS

Upon completion of the work and prior to final payment, all items installed under this contract shall be subjected to acceptance tests as specified or required to comply with the contract documents.

The Contractor shall furnish labor, fuel, energy, water, and all other materials, equipment and instruments necessary for all acceptance tests, at no additional cost to the Owner.

I.46. FENCES, IMPROVEMENTS, AND DRAINAGE CHANNELS

Fences or other improvements removed to permit construction shall be replaced in the same location and left in a condition as good as, or better, than that in which they were found. There shall be no separate pay item for fences removed or damaged beyond the limits shown in the plans.

Temporary fencing for maintenance of site security shall be provided by the Contractor at his expense. Temporary fencing, with gates, to restrain livestock shall be provided through areas where livestock are pastured, unless the Contractor makes satisfactory arrangements with the land owner and/or tenant. The temporary fence shall be installed on the easement lines and shall be removed after the trench has been backfilled.

Where surface drainage channels or drainage structures are disturbed or altered during construction, they shall be restored to their original condition of grade and cross section as soon as possible.

Temporary channels required to provide adequate drainage during construction shall be provided and maintained by the Contractor. No separate payment shall be allowed.

I.47. SUPERINTENDENCE BY CONTRACTOR

The Contractor shall have on the project at all times, as his agent, a competent Superintendent capable of reading and thoroughly understanding the plans and specifications and thoroughly experienced in the type of work being performed. The Superintendent must be capable reading, speaking and comprehending English. The Superintendent shall have full authority to execute orders or directions and to promptly supply such materials, equipment, tools, labor and incidentals as may be required. Such superintendence shall be furnished irrespective of the amount of work subcontracted.

The Contractor shall be responsible for supervision of all work performed by the subcontractor at all times during construction.

I.48. HANDLING MATERIALS NOT APPROVED

The Contractor shall remove from the site any materials found to be damaged, and any materials not meeting the specifications. These materials shall be removed promptly, unless

the Engineer and Owner will accept the materials after repairing. Materials found to be damaged, or not acceptable to the Engineer or Owner after installation, shall be removed or replaced as directed. Inspection before installation shall not relieve the Contractor from any responsibility to furnish materials meeting the specifications.

I.49. DUST CONTROL

Contractor shall take responsible measures to prevent unnecessary dust. Earth surfaces subject to dusting shall be kept moist with water or by application of a chemical dust suppressant. Dusty materials in piles or in transit shall be covered when practical to prevent blowing. Dust control shall be provided on all days within the contract period regardless of work taking place or not. Contractor shall allow at least four times per day as required. No separate pay shall be provided.

Buildings or operating facilities which may be affected adversely by dust shall be adequately protected from dust. Existing or new machinery, motors, instrument panels or similar equipment, shall be protected by suitable dust screens. Proper ventilation shall be included with dust screens.

I.50. APPLICATION FOR FINAL PAYMENT

In addition to the requirements of Article 5.08 in Section G – GENERAL CONDITIONS, the final Application for Payment shall be accompanied by all other documentation called for in the Contract Documents, including Affidavit of Bills Paid, Waiver of Lien, Consent of Surety to Final Payment, complete record drawings and such other data and schedules as Owner may reasonably require.

I.51. CORRECTION PERIOD

If, prior to one (1) year after date of final payment or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any work is found to be defective, Contractor shall within seven (7) days of notification by Owner, without cost to Owner and in accordance with Owner's written instructions, either correct such defective work or, if it has been rejected by Owner, remove it from the site and replace it with non-defective work. If Contractor does not promptly comply with the terms of such instructions, Owner may have the defective work corrected or the rejected work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by Contractor.

Nothing in these Contract Documents concerning the correction period shall establish a period of limitation with respect to any other obligation which Contractor has under the Contract Documents. The establishment of time periods relates only to the specific obligations of Contractor to correct the work, and has no relationship to the time within which his obligations under the Contract Documents may be sought to be enforced, nor to

the time within which proceedings may be commenced to establish his liability with respect to his obligations other than to specifically correct the work.

All special guarantees and manufacturers' warranties that extend beyond the one (1) year correction period shall be issued directly to the Owner without continued involvement by the Contractor.

I.52. ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor shall provide and maintain, during the life of the contract, environmental protection as defined herein:

1. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice.
2. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project.
3. Comply with Federal, State, and local regulations pertaining to the environment, including water, air, solid waste, hazardous waste and substances, oily substances, and noise pollution. Obtain all construction and disposal permits as required.

I.53. ENVIRONMENTAL PROTECTION PLAN

All of the Contractor's employees shall be trained on the site Environmental Protection Plan requirements. The Contractor shall meet all requirements of the Owner's Environmental Protection Plan described herein.

1. Land Resources: Except in areas to be cleared, DO NOT remove, cut, deface, injure, or destroy trees or shrubs without the Owner's permission. DO NOT fasten or attach ropes, cables, or guys to existing nearby trees for anchorages unless authorized by the Owner. Where such use of attached ropes, cables, or guys is authorized, the Contractor shall be responsible for any resultant damage.
2. Replacement: Trees and other landscape features scarred or damaged by equipment operations, and replace with equivalent, undamaged trees and landscape features. Obtain Owner approval before replacement.
3. Oily and Hazardous Substances: Prevent oil or hazardous substances from entering the ground, drainage areas, or navigable waters. In accordance with 40 CFR §112, surround all temporary fuel oil or petroleum storage tanks with a temporary berm or containment of sufficient size and strength to contain the contents of the tanks, plus ten percent (10%) freeboard for precipitation. The berm shall be impervious to oil for seventy-two (72) hours and be constructed so that any discharge will not permeate, drain, infiltrate, or otherwise escape before cleanup occurs.
4. Storm Water Drainage: There shall be no discharge of excavation groundwater to the sanitary sewer, storm drains, or to drainage ditches without prior specific authorization by required regulatory agencies and Owner in writing. Discharge of

- hazardous substances will not be permitted under any circumstances. Construction site runoff shall be prevented from entering any storm drain or the drainage ditch directly by the use of straw bales or other method suitable to the Engineer. Contractor shall provide erosion protection of the surrounding soils. Contractor shall be responsible for payment and receipt of a stormwater permit if necessary. Contractor shall maintain stormwater controls of said permit per state, local agencies or Engineer and Owner.
5. Fish and Wildlife Resources: DO NOT disturb fish and wildlife. DO NOT alter water flows or otherwise significantly disturb the native habitat adjacent to the project and critical to the survival of fish and wildlife, except as indicated or specified.
 6. Burn-off: Burn-off of the ground cover is not permitted.
 7. Protection of Erodible Soils: Immediately finish the earthwork brought to a final grade, as indicated or specified. Immediately protect the side slopes and back slopes upon completion of rough grading. Plan and conduct earthwork to minimize the duration of exposure of unprotected soils.
 8. Temporary Protection of Erodible Soils: Use the following methods to prevent erosion and control sedimentation:
 - a. Mechanical Retardation and Control of Runoff: Mechanically retard and control the rate of runoff from the construction site. This includes construction of diversion ditches, benches, berms, and use of silt fences and straw bales to retard and divert runoff to protected drainage courses.
 - b. Vegetation and Mulch: Provide temporary protection on sides and back slopes as soon as rough grading is completed or sufficient soil is exposed to require erosion protection. Protect slopes by accelerated growth of permanent vegetation, temporary vegetation, mulching, or netting. Stabilize slopes by hydro-seeding, anchoring mulch in place, covering with anchored netting, sodding, or such combination of these and other methods necessary for effective erosion control.
 - c. Provide new seeding where ground is disturbed. Include topsoil or nutrients during the seeding operation necessary to establish a suitable stand of grass.
 9. Control And Disposal Of Solid Wastes: Prevent contamination of the site or other areas when handling and disposing of wastes. At project completion, leave the areas clean. Remove all solid waste (including non-hazardous debris) from the property and dispose off-site at an approved landfill. Solid waste disposal off-site must comply with most stringent local, State, and Federal requirements including 40 CFR §241, 40 CFR §243, and 40 CFR §258.
 10. Dust Control: Keep dust down at all times, including during nonworking periods. Sprinkle or treat, with dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing will not be permitted.

11. Noise: Make the maximum use of low-noise emission products, as certified by the EPA. Confine soil placement operations to the period between 7 A.M. and 5 P.M., Monday through Friday, exclusive of holidays, unless otherwise specified.
12. Spill Control: In the event of a spill or release of a hazardous substance (as designated in 40 CFR §302), pollutant, contaminant, or oil (as governed by the Oil Pollution Act (OPA), 33 U.S.C. 2701 et seq.), the Contractor shall notify the Owner immediately. Immediate containment actions shall be taken to minimize the effect of any spill or leak. Cleanup shall be in accordance with applicable federal, state, and local regulations. As directed by the Owner, additional sampling and testing shall be performed to verify spills have been cleaned up. Spill cleanup and testing shall be done at no additional cost to the Owner.
13. Spill Response Materials:
 1. The Contractor shall provide appropriate spill response materials including, but not limited to the following: containers, adsorbents, shovels, and personal protective equipment. Spill response materials shall be available at all times when contaminated materials/wastes are being handled or transported. Spill response materials shall be compatible with the type of materials and contaminants being handled.
 2. Within five days after the award of contract, the Contractor shall meet with the Owner to discuss the project and verify a mutual understanding relative to the details of environmental protection, including measures for protecting natural resources, required reports, and other measures to be taken.
 3. The Engineer must receive from the Contractor a letter signed by an officer of the firm appointing a project Environmental Manager and stating that he/she is responsible for managing and implementing the Environmental Program as described in this contract. The Environmental Manager must have authority to direct the removal and replacement of non-conforming work, and the letter shall include a statement of this authority.

SECTION CW

CARE OF WATER

CW.1 SCOPE

The work covered by this section of the specifications consists of furnishing all labor, equipment, and materials, and of performing all operations in connection with the care of water during construction, complete, in strict accordance with this section of the specifications and the applicable drawings, and subject to the terms and conditions of the contract.

CW.2 CONDUCT OF WORK

All permanent work shall be constructed in areas continuously maintained free of water. The Contractor shall construct and maintain such dikes, plugs, diversion and drainage channels, and/or other protective work as necessary as to continuously protect the area. The Contractor shall also furnish, install, maintain, and operate all necessary pumping and other equipment for continually dewatering the work area. All temporary protective works and dewatering equipment shall be removed by the Contractor after serving their purposes.

All work shall be staged and conducted in such a manner that no constriction of flow capacity in the channel occurs. At all times, conveyance in the channel should be maintained at least at the level of the existing channel prior to construction. The contractor shall submit a plan for review and approval, outlining in detail his proposed excavation/construction staging. The plan shall specifically address care of water.

Seepage waters may be encountered in portions of the work area. The Contractor shall design and construct temporary dewatering systems to such extend that the required construction can be accomplished.

The contractor shall not be allowed to dam the existing drainage ditch or alter the movement of water within the drainage ditch.

CW.3 PAYMENT

No separate payment will be made for work covered under this section of the specifications and all costs in connection therewith shall be included in the contract price for the work items to which the work pertains.

SECTION DIP
DUCTILE IRON PIPE AND FITTINGS

DIP.1. GENERAL

The work to be performed under this section of the specifications shall comprise the furnishing of all labor, equipment, and materials, and in performing all operations necessary in connection with the installation of ductile iron pipe and fittings as shown in the plans, and as specified herein.

The Contractor shall submit for approval, complete and dimensional working drawings of all ductile iron pipe line layouts. Such drawings shall indicate the size, class, and laying dimensions of all pipe, valve fittings, expansion couplings, and specials and the location of all hangers and supports needed for the installation and not specifically indicated for on the plans. The number, size, and length of all bolts required for flanged pipe installations shall be given on the pipe schedule of the working drawings.

DIP.2. DUCTILE IRON PIPE AND FITTINGS

Ductile Iron Pipe of size, class, and joint type shown on the plans will be furnished by the Contractor. All pipe furnished shall meet USA Standard A21.50, ANSI A 21.50, AWWA C150 (thickness design), or current revision. All Ductile Iron Pipe furnished shall also meet the requirements of federal specification ANSI A 21.51, AWWA C151, or current revision, minimum thickness Class 250, unless otherwise noted on the plans. Flanged Ductile Iron Pipe shall be furnished with Ductile Iron Flanges and shall conform to ANSI A21.15 and AWWA C115, minimum thickness Class 250.

Fittings shall be ductile iron and shall meet the requirements of ANSI A21.10, AWWA C110, or current revision. All fittings for underground service shall be Mechanical Joint, unless shown otherwise on the plans. All fittings for above ground service shall be short body flanged fittings with Class 125 flanges. All flanges shall be faced and drilled. Compact fittings will be allowed as an alternate system.

Bell and spigot fittings or specials shall conform to AWWA Standards with bell dimensions suitable for use with the outside diameter of the spigots for which they must provide a socket. Where special fittings are required, they shall be approved design and have the same diameters and metal thickness as standard fittings, unless otherwise required, but their laying lengths and other functional dimensions shall be determined by their positions in the pipe lines and the requirements of the plans.

At the Contractor's option, ductile iron pipe, which will be underground, may be of push-on, rubber gasket type joint, or mechanical joint, minimum thickness Class 51, unless otherwise shown on the plans.

All joints shall be made in strict accordance with the manufacturer's specifications.

DIP.3. LININGS AND COATINGS

Ductile Iron Pipe and Fittings shall be cement mortar lined conforming to ANSI/AWWA - C104/A21.4 specifications for cement lining. Pipe and Fittings Exterior shall be uncoated as delivered to the job site, for encasement or painting as appropriate.

DIP.4. POLYETHYLENE ENCASEMENT

All ductile iron or cast iron pipe, fittings, and valves will be protected with polyethylene encasement in accordance with the latest revision of AWWA C 105 specification and/or ANSI A 21.5.

In general, the following items will summarize that specification, however, the Contractor will follow the entire specification as if written herein:

- A. The pipe encasement material will be a polyethylene film with a thickness of 8 mils. Either tube or sheet material may be used with the following widths for the various pipe sizes:

Minimum Polyethylene Width		
<u>Dia. of Pipe</u>	<u>Flat Tube</u>	<u>Sheet</u>
6"	20"	40"
8"	24"	48"
12"	30"	60"
16"	34"	68"

- B. The tube will completely encase each section of pipe with at least a one-foot (1') overlap at each joint. Overlaps will be secured by the used of adhesive tape, plastic string, or any other material capable of holding the encasement in place until backfilling operations are completed. The encasement shall prevent contact between the pipe and the surrounding bedding and backfill material, but is not intended to be a complete air and watertight enclosure.
- C. Bell holes must be made at the joints to facilitate installation at the joints. Loose material will be overlapped to make a snug fit and secured with tape or string. Slack material along the barrel of the pipe shall be taken up to make a snug, but not tight, fit and secured at the quarter points of the pipe length.
- D. Repairs to any rip, puncture, or other damage to the polyethylene will be made with adhesive tape or with short lengths of tubing cut, wrapped and secured in place prior to backfilling procedure.
- E. Backfill of the pipe shall be performed as described in Section W herein. The material of backfilling shall be free from cinders, refuse, boulders, rocks, stones, or other material that could damage the polyethylene.

DIP.5. EXPANSION COUPLINGS

Where the use of expansion couplings is indicated on the plans, they shall be Style 38 Dresser couplings, or approved equal, unless otherwise required.

As may be necessary to conform to the dimensions of the couplings, the outside diameter of the plain ends of the ductile iron pipe sections which are to be jointed by a coupling shall be gauged to proper size for use with the couplings.

DIP.6. HANDLING

During loading, transportation, and unloading, care shall be taken to prevent injury to the pipe or fittings. Loading or unloading shall be so handled that the piece being moved is under perfect control at all times. Under no circumstances shall a pipe or large fitting be dropped.

DIP.7. LAYING AND INSTALLING

Proper and suitable tools and equipment for the installation of the pipe lines and appurtenant valves and fittings in a safe and workmanlike manner shall be furnished and used on the work.

The pipe and fittings shall be thoroughly cleaned immediately before installation and shall be kept clean until final inspection of the project. Special care shall be exercised to prevent the leaving of wood, blocks, cans, tools, or other foreign objects in the pipe line during installation.

All costs incidental to the removal of any such foreign object, or objects, from the pipe line shall be borne by the Contractor.

All pipe lines shall be kept clean during construction. Small lines laid in excavated trenches shall have open ends or other openings, plugged with temporary bulkheads or caps at any time the work will be left in an uncompleted state for a period of more than eight (8) hours.

Pipe installed in excavated trenches shall be laid on a good foundation and supported throughout the length of the barrel on firm earth or sand fill. Trench excavation shall provide ample room at pipe joints to allow the joints to be made in a proper manner. All pipe lines shall be installed to grade and line as required by the plans.

Elbows, tees, etc., shall be properly blocked and anchored so that there will be no movement of the pipe due to internal and external pressure.

DIP.8. SUPPORTS AND HANGERS

The Contractor shall furnish and install all necessary supports and hangers, indicated on the plans or required for the proper installation of the ductile iron pipe lines in a workmanlike manner.

DIP.9. FLANGED JOINTS

Flanged joints shall be made with bolts, or bolt-studs, with a nut on each end. Bolts, stud-bolts, and nuts shall conform to American Standard Heavy dimensions; semi-finished, with square or hexagonal heads and cold punched hexagonal nuts meeting the requirements of ASA B18.2. Bolt sizes shall be American Standard for the flanges specified. Bolt and nut threads shall conform to ASA B1.1, coarse thread series, Class 2 fit.

Gaskets for Class 125 flanges shall be full face with bolt holes punches. Gasket material shall be nylon-reinforced rubber, 1/8" minimum thickness.

DIP.10. GASKET MATERIALS

Gaskets furnished for Flanged, Mechanical Joint, of Bell and Spigot Piping for Water, Wastewater, and process Air Service shall be of the materials specified below:

Minimum
Temperature Minimum

<u>Service</u>	<u>Joint Type</u>	<u>Rating</u>	<u>Thickness</u>	<u>Material</u>
Water or Wastewater	Flanged	150°F	1/8"	Nylon Reinforced Rubber
Water or Wastewater	M.J. or B&S	150°F		Styrene-Butadiene

DIP.11. WALL CASTINGS

Mechanical Joint Wall Sleeves will be utilized when possible. They shall be made of Ductile Iron, as specified, and they shall allow the pipe to pass completely through the sleeve to allow for flexibility and field adjustment. M.J. Wall Sleeves shall be one (1) static casing as manufactured by American Cast Iron Pipe Company or equal. Fabricated Wall Castings shall have Ductile Iron wall collars and shall be welded on both sides. Screwed-on bells will not be acceptable.

DIP.12. TESTING

As the Engineer may determine that pipe lines can be pressure tested for leakage without unreasonably expensive temporary bulkheads or blind flanges, such as might be required to test large diameter pressure lines, they shall be subjected to water test pressure of 150 psi. All such tests shall be conducted to the satisfaction and under the

observation of the Engineer.

All costs incidental to making such tests shall be borne by the Contractor. Where pipe lines are laid in excavation, testing shall precede final backfill.

All pipe lines shall be watertight under test, or under operating conditions, as a condition of final acceptance of the work.

DIP.13. BELL SPIGOT DUCTILE IRON PIPE

At the Contractor's option, Ductile Iron pipe, which will be underground, may be of the rubber gasket type joint as manufactured by the following companies.

- A. "Tyton" - by United States Pipe and Foundry Company and by
- B. "Fastite" - by American Ductile Iron Pipe Company
- C. Approved Equal

All joints shall be made in strict accordance with the manufacturer's specifications.

SECTION ETS

TRENCH EXCAVATION SAFETY PROTECTION

Trench protection for all trenches over five (5') feet in depth shall be accomplished by the Contractor in accordance with all provisions of PART 1926, SUBPART P - EXCAVATIONS, TRENCHING, AND SHORING AND INTERPRETATIONS (OSHA), or any updated and subsequent version thereof.

It is the sole duty, responsibility, and prerogative of the Contractor, not the Owner or Engineer, to determine the specific applicability of a trench safety system to each field condition encountered on the project. It will be the Contractor's responsibility to identify the soil type and to accurately adjust his trench safety methods according to the OSHA requirements.

The Contractor shall indemnify and hold harmless the Owner, its employees and agents, from any and all damages, costs, (including, without limitation, legal fees, court costs, and the cost of investigation), judgments or claims by anyone for injury or death of persons resulting from the collapse or failure of trenches constructed under this Contract.

The Contractor acknowledges and agrees that this indemnity provision provides indemnity for the Owner in case the Owner is negligent either by act or omission in providing for trench safety, including, but not limited to, inspections, failure to issue stop work orders, and the hiring of the Contractor.

THE BID ITEM FOR "OSHA TRENCH SAFETY" SHALL INCLUDE PAYMENT FOR THE ACTUAL TRENCH WALL SUPPORT, ENGINEERING, INSPECTION, ETC. DAMAGES TO ADJACENT EXISTING UTILITIES AND IMPROVEMENTS OF ANY KIND THAT OCCUR WHEN THE TRENCH WALLS MOVE, SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

Payments will be made at the unit bid price per linear foot in the Proposal.

SECTION HY
HYDROMULCHING

HY.1. **SCOPE**

This item shall consist of sowing of seeds, fertilizing, mulching with cellulose fiber and other management practices along and across such areas as are indicated or as directed by the Engineer.

HY.2. **MATERIALS**

1. All seed must meet the requirements of the Texas Seed Law including the labeling requirements for showing pure live seed (PLS), name and type of seed. Seed furnished shall be of the previous season's crop and the date of analysis shown on each bag shall be within nine months of the time of delivery to the project. Each variety of seed shall be furnished and delivered in separate bags or containers. A sample of each variety of seed shall be furnished for analysis and testing when directed by the Engineer. The amount of seed planted per acre shall be of the type specified below.
2. Water shall be clean and free of industrial wastes and other substances harmful to the growth of grass or the area irrigated.
3. The fertilizer used shall have an analysis of 13-13-13.
4. Cellulose Fiber Mulch shall be natural cellulose fiber much produced from grinding clean whole wood chips. The mulch shall be designed for use in conventional mechanical planting, hydraulic planting of seed or hydraulic mulching of grass seed, either alone or with fertilizers and other additives. The mulch shall be such that, when applied, the material shall form a strong, moisture-retaining mat without need of an asphalt binder.

HY.3. **SEEDING**

The seed bed shall be previously prepared as specified and hydraulic planting, which is capable of placing all material in a single operation, shall be used.

March 1 to September 15 C Hydraulic planting mixture and minimum rate of application per 1000 square feet:

<u>Hulled Bermuda Seed (PLS=0.83)</u>	<u>Water Soluble Fertilizer</u>	<u>Natural Wood Fiber Mulch</u>	<u>Soil Tackifier</u>
1 lb.	15 lb.	45.9 lb.	1.4 lb.

September 15 to March 1 C Add 7 pounds per 1000 square feet of winter rye with a PLS=0.83 to above mixture.

HY.4. MEASUREMENT

Measurement will be by the square yard of surface area as shown on the plans.

HY.5. PAYMENT

The work performed and materials furnished, as prescribed by this item, and measured as provided under Measurement, will be paid for at the unit price per square yard. This price is full compensation for furnishing materials, including water for hydromulching operations, mowing, labor, equipment, tools, supplies, and incidentals. Fertilizer will not be paid for directly but will be subsidiary to this Section.

SECTION SW3P
STORM WATER POLLUTION PREVENTION PLAN

SW3P.1 **PREPARATION AND NOTIFICATION PHASE**

A. **Storm Water Pollution Prevention Plan:**

The Contractor shall be responsible for preparation of the Storm Water Pollution Prevention Plan (SW3P). The Contractor may incorporate as a part of the SW3P the erosion control details and notes which are included in the project plan set. The SW3P shall include all elements required by TPDES General Permit No. TXR150000 as issued by the Texas Commission on Environmental Quality, effective date, March 5, 2008. The SW3P must be retained on-site at all times during the construction of the project. The Contractor shall complete the document in Attachment 1 and insert into the SW3P.

B. **Notice of Intent and Construction Site Notice:**

The Contractor shall submit a Notice of Intent (NOI) to the Texas Commission on Environmental Quality. The application fee and annual Water Quality Fee shall be paid for by the Contractor. A Construction Site Notice and NOI are required for areas where the land disturbed is equal to or greater than five (5) acres. For disturbed areas where the acreage is between one (1) and five (5) acres, only a Construction Site Notice is required. A copy of the NOI (and/or Construction Site Notice) shall be given to the City. Both forms shall be posted at the project site in a location where it is readily available for viewing by the general public, local, state, and federal authorities.

An Authorized Representative of the Contractor shall sign the NOI and/or Construction Site Notice, and Attachment 1. The authorized representative must be someone at or near the top of the management chain, such as the president, vice president, or a general partner, who has been delegated the authority to sign and certify this type of document. See 30 TAC, 305.44 of the TCEQ Rules and Regulations for requirements related to Application for Permit.

A NOI must be postmarked at least seven (7) days before construction begins. If the NOI form is submitted electronically via the STEERS Program, construction may begin the same day as the NOI is submitted.

CONSTRUCTION/IMPLEMENTATION PHASE

Once the NOI has been mailed, the Contractor may start construction of the project as early as seven (7) days after the NOI is postmarked, or immediately if the NOI is submitted electronically through STEERS. The Contractor must: (a) implement the controls, (b) inspect and maintain the controls, (c) maintain records of construction activities, (d) update/change the plan to keep it current, and (e) have plans accessible as outlined in the SW3P.

A. Implement Controls:

The first action that should be taken is to construct or perform the controls that were selected for the SW3P. The controls must be installed and/or constructed in the order indicated in the sequence of major activities. Stabilization measures must be applied within the time frame specified in the permit.

To ensure that controls are adequately implemented, it is important that the work crews who install the measures are experienced and/or adequately trained. Improperly installed controls can have little or no effect and may actually increase the pollution of storm water. It is also important that all other workers on the construction site be made aware of the controls so that they do not inadvertently disturb or remove them.

B. Inspect and Maintain Controls:

Inspection and maintenance of the protective measures that are part of this plan are as important to pollution prevention as proper planning, design/selection, and installation. The Contractor shall provide for the systematic inspection of the SW3P Controls.

Inspection - Inspection shall be at least every 14 days and within 24 hours after the end of a storm of 0.5 inches or more, or every seven (7) days. All disturbed areas of the site, areas for material storage, locations where vehicles enter or exit the site, and all of the erosion and sediment controls that were identified as part of the plan must be inspected. Controls must be in good operating condition until the area they protect has been completely stabilized and the construction activity is complete. The inspector for the Contractor shall sign all inspection reports.

Maintenance/repairs - The inspector must record any damages or deficiencies in the control measures on an inspection report form provided for this purpose. These reports document the maintenance and repair and to prove that inspection and maintenance were performed. The Contractor should correct damages or deficiencies as soon as practicable after the inspection but in no case later than seven (7) days after the inspection. Any changes that

may be required to correct deficiencies in the SW3P should also be completed and dated in the document as soon as practicable after the inspection but in no case later than seven (7) days after the inspection.

C. Maintain Records of Construction Activities:

In addition to the inspection and maintenance reports, the inspector shall keep records of the construction activity on the site. In particular, the inspector shall keep a record of the following information:

- The dates when major grading activities occur in a particular area.
- The dates when construction activities cease in an area, temporarily or permanently.
- The dates when an area is stabilized, temporarily or permanently.

These records can be used to make sure that areas where there is no construction activity will be stabilized within the required time frame.

D. Update/Change the Plan:

For a construction activity to be in full compliance with its TPDES Construction General Permit, and for the SW3P to be effective, the plan must accurately reflect site features and operations. When it does not, the plan must be changed. The plan must also be changed if the operators observe that it is not effective in minimizing pollutant discharge from the site.

E. Provide for Plan Location and Access:

The General Permit has specific requirements regarding plan location and access.

Plan location - A copy of the SW3P must be kept at the construction site from the time construction begins until the site is finally stabilized.

Access - Although plans and associated records are not necessarily required to be submitted to the State, these documents must be made available upon request to the State or local agency who is approving erosion and sediment control plans, or storm water pollution prevention plans. If site storm water runoff is discharged to a municipal separate storm sewer system, the plans must be made available upon request to the municipal operator of the system.

SW3P.3 FINAL STABILIZATION/TERMINATION PHASE

Operators of a construction site must continue to comply with permit conditions until: (1) they no longer meet the definition of an Operator of a construction site; or (2) the construction activity is complete, all disturbed soils have been finally

stabilized, and temporary erosion and sediment controls have been or will be removed. A permittee should submit a Notice of Termination (NOT) to inform TCEQ that he/she is no longer an Operator of the construction activity.

A. Final Stabilization:

Final stabilization is defined by the General Permit as meaning that all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 70 percent of the native background vegetated cover (ie, original conditions) for unpaved areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

B. Notice of Termination:

A NOT should be completed and submitted to TCEQ and the City when the site has been finally stabilized or when an Operator of a construction activity changes. Information to be included on the NOT includes the location of the construction site; the name, address, and telephone number of the Operator terminating coverage; the TPDES General Permit number; an indication of why coverage under the permit should be terminated for the Operator; and a signed certification statement.

Note that when there is a change in operators of a construction activity, the new Operator must submit a NOI to be covered by the permit at least seven (7) days before the change in Operator.

C. Record Retention:

Following the termination of construction activities, the permittees must keep a copy of the SW3P, all reports and actions required by the General Permit, and all the data used to complete the NOI for a period of at least three years following final stabilization. Prior to submitting the NOT, the Contractor will furnish the City copies of all NOIs, certificates, and inspection forms for record retention purposes.

SW3P.4 MEASUREMENT

The erosion control items to be measured shall be the items listed in the Proposal Section of this Project Manual. All other erosion, sediment and water pollution control devices and measures required, both temporary and permanent, shall be considered subsidiary to the bid item "Storm Water Pollution Prevention Plan" and no direct measurement will be made. Preparation and updating of the "Storm Water Pollution Prevention Plan" including all reports and records to be maintained shall not be measured, but shall be considered subsidiary to the bid item "Storm Water

Pollution Prevention Plan”.

SW3P.5

PAYMENT

The erosion control items to be measured shall be paid for at the unit price bid per unit as stated in the Proposal section of this Project Manual. The unit price will be full compensation for furnishing all labor, materials and equipment necessary to install, maintain, and remove (if required) the erosion control items.

All other erosion, sediment and water pollution control devices and measures required, both temporary and permanent, shall be bid as a lump sum price for the bid item “Storm Water Pollution Prevention Plan”. Preparation and updating of the “Storm Water Pollution Prevention Plan” including all reports and records to be maintained shall be included in the lump sum price for the bid item “Storm Water Pollution Prevention Plan”. The lump sum bid price for the “Storm Water Pollution Prevention Plan” will be full compensation for furnishing all labor, materials and equipment necessary to install, maintain, and remove (if required) all items and actions necessary to maintain and complete the “Storm Water Pollution Prevention Plan” requirements for this project.

Costs for the Contractor’s Application Fee for the NOI and the annual Water Quality Fee shall be included in the lump sum bid for the “Storm Water Pollution Prevention Plan”.

Costs for personnel to inspect the protective measures that are a part of the “Storm Water Pollution Prevention Plan” shall be included in the lump sum bid for the “Storm Water Pollution Prevention Plan”.

Pollution control measures may be applicable to Contractor operations outside the right of way and easement area where such work is necessary as a result of roadway related construction such as construction and haul roads, field offices, equipment and supply areas, and material sources. Pollution control measures outside the right of way will not be measured for payment but shall be performed at the Contractor's expense.

Attachment 1

SW3P Roles and Responsibilities

SW3P ROLES AND RESPONSIBILITIES

This is a shared SW3P between the below Primary Operators. The role of each Operator is listed below.

PRIMARY OPERATOR (CITY):

SIGNATURE: _____
PRINTED NAME: _____
ADDRESS: _____

RESPONSIBILITIES:

- ☒ Operational control over plans and specifications, including the ability to make modifications to those plans.
- ☐ Day-to-day operational control of activities necessary to ensure compliance with the SW3P for the site.

PRIMARY OPERATOR (CONTRACTOR):

SIGNATURE: _____
PRINTED NAME: _____
ADDRESS: _____

RESPONSIBILITIES:

- ☐ Operational control over plans and specifications, including the ability to make modifications to those plans.
- ☒ Day-to-day operational control of activities necessary to ensure compliance with the SW3P for the site.

SECTION TF
TEMPORARY FACILITIES

TF.1. **GENERAL**

The provisions of the "General Information" and "Special Instructions" form a part of this section.

TF.2. **SCOPE**

This section covers the furnishing of all appliances, labor, materials, tools, transportation, and services required to perform and complete all preliminary work and temporary construction required for the construction and site as indicated on the drawings and as specified.

TF.3. **TEMPORARY ELECTRIC SERVICE**

Electric service required in the performance of the contract shall be furnished and paid for by the Contractor who shall furnish, install, and maintain all temporary poles and overhead construction, transformers, meters, drops, and other wiring and fittings for both light and power at locations required in the work, and shall bear the cost of making the service connections.

TF.4. **SANITARY FACILITIES**

The Contractor shall provide, install, and maintain, for the duration of the work, temporary outside toilet facilities for the use of the workmen. The toilet facilities shall be adequate, housed on a weather-tight and elevated floored structure and located advantageously. The toilet shall be kept in a clean and sanitary condition until the completion of the work, then shall be removed from the site, and the portion of the site occupied by the same properly cleaned up, graded, and left in acceptable condition.

TF.5. **BARRICADES**

- A. The Contractor shall erect temporary barricades as required to safely conduct the work.
- B. Barricades shall be substantially built of posts not to exceed eight feet (8') apart and not less than 1" x 6" rails. The top rail shall not be less than 36 inches from the ground, and the open spaces approximately 12 inches. Where barricades join to or are within four (4') feet of any parts of a building which is to be reconstructed, they shall be of sufficient height and be sheathed solidly with one (1") inch boards, to provide the necessary protection.

TF.6. PUMPING AND DRAINAGE

Surface or subsurface water or other fluid shall not be permitted to accumulate in excavations nor under structures. Should such conditions develop or be encountered, the water or other fluid shall be controlled and suitably disposed of by means of temporary pumps, piping, drainage lines and ditches, dams, or other methods as approved by the Engineer.

TF.7. DUST PALLIATION

Throughout the entire contract period, the Contractor shall effectively dust-palliate the working area, roads used in the operations, and involved portions of the site with such frequency as will satisfactorily allay the dust during all hours that work is being performed. This shall include watering with trucks; including all necessary materials and labor.

TF.8. CLEANING

The Contractor shall from time to time remove all dirt and rubbish caused by the work from the structures and site. At completion of the work, the Contractor shall thoroughly clean the interior and exterior of all building, structures, equipment, etc., including hardware, floors, roofs, sills, ledges, glass or other surfaces where debris, dust, dirt, and paint spots may have collected. All glass shall be washed clean at completion.

TF.9. PAYMENT

No separate payment will be made for work covered under this section of the specifications and all costs in connection therewith shall be included in the contract price for the items to which the work pertains.

SECTION W
WATER MAIN CONSTRUCTION

W.1. **SCOPE**

These specifications for construction of water mains are intended to be so written that only first class workmanship and finish of the best grade and quality will result. The fact that the following specifications may fail to be so complete as to cover all details will not relieve the Contractor of full responsibility for providing a complete project of high quality, first class finish and appearance and satisfactory for operation.

The Contractor shall furnish all materials, labor, and equipment for constructing the work included in these specifications and as detailed on the plans.

W.2. **PROTECTION OF WORK**

When construction is stopped temporarily and at the end of the day's work, tight fitting stoppers or bulkheads shall be securely placed in or across the ends of all pipes.

The Contractor will be held responsible for the care of all work until final completion and acceptance, and he will be required to make good, at his own expense, any damage or injury it may sustain for any cause. He shall assume all risks from floods and casualties of every description and make no charge for damages from such cause.

W.3.1. **MATERIALS**

The Contractor shall furnish and place materials meeting the requirements of these specifications, of the dimensions and types at the locations and elevations shown on the plans or established by the Engineer. All materials shall be approved by the Engineer before being installed and any of these materials placed before they are so approved shall be removed and replaced with approved materials.

W.3.2. **STORAGE OF MATERIALS**

Materials delivered to the site of the work prior to their use shall be stored so as to cause the least inconvenience to the public, and in a manner satisfactory to the Engineer.

Materials that will deteriorate such as cement and mortar shall be stored in weather-tight buildings.

W.3.3. DESIGN PRESSURES

Pipe and fittings for water lines shall be designed to withstand minimum internal working pressures of 235 pounds per square inch unless otherwise noted on the plans or in the bid proposal.

W.4.1. TRENCHING AND BACKFILL FOR WATER MAIN CONSTRUCTION

This item consists of excavating all necessary trenches for the water main and system construction and backfilling after the pipe has been properly laid, inspected, and tested.

This work shall include the furnishing of all labor, materials, tools, equipment, and machinery necessary for clearing and removing from the site of the work, wherever located, all obstructions, trees, stumps, brush, vegetation and debris, and all earth, rock, and other materials to be excavated; the removal of existing structures except where specifically paid for as separate contract pay items; the stripping or removal of top soil or sod to be piled separately from other excavated materials and later to be restored to its original place after backfilling is completed; the furnishing, placing, and maintaining of all sheeting, shoring and bracing necessary to protect the work and adjacent properties, all pumping, bailing, and draining necessary to keep the excavation free from seepage water, water from sewers, drains, ditches, creeks, and other sources; provision for the uninterrupted flow of sewers and surface waters during progress of the construction; the removal, after completion of the work, of all sheeting, shoring, and bracing not necessary to support the sides of the excavation; the satisfactory disposal of excess and unsuitable materials not required or which cannot be used for backfilling, tamping, compacting, and refilling after settlement of all excavated areas; the restoring of all streets, alleys, fences, rights-of-way, and other lands or structures, private or public, damaged or occupied by the Contractor in the performance of the contract, to as good a condition as they were prior to the beginning of the work.

W.4.1.a. CLASSIFICATION

Excavation in trenches for water line construction will be unclassified and will not be paid for separately but shall be included in the price bid per linear foot for the various sizes of pipe unless specific provision for separate payment is called for in the Special Provisions and on the Proposal Form.

W.4.2. CONSTRUCTION METHODS

Trenches shall be excavated by trenching machine, backhoe or dragline, except in locations where hand trenching is required. The banks of trenches shall be vertical, to a point one (1') foot above the top of the pipe.

Trenches will be excavated to the lines and grades laid out by the Engineer or as shown on the plans. No change in locations of the lines is contemplated, but should any changes be made in the lines not materially altering the amount of character of

the trenching to be done, the Contractor shall proceed with the changed alignment at the unit bid price. In case any change involves greater construction difficulties than the original alignment, the Owner and the Engineer will agree with the Contractor for extra compensation therefor, prior to the construction of the changed line or lines.

The width of the trench shall be six (6") inches minimum and eight (8") inches maximum on each side of the pipe bell.

Trenches for water pipe shall be of such depth as to provide a minimum of 42 inches of cover unless otherwise shown on the plans.

The excavation shall not advance more than 300 feet ahead of the completed and backfilled pipe line. Pipe shall be laid in all trench that has been opened at the end of each day's work, unless the Contractor secures written permission to do otherwise from the Engineer.

If the bottom of the trench becomes an unstable foundation for the pipe through the neglect of the Contractor to adequately shore or dewater, the Contractor will be required to remove the unstable material and backfill the trench to the proper grade with approved compacted gravel, and no extra compensation will be granted for this material or work.

Also, if the trench is inadvertently excavated deeper than necessary it shall be backfilled to the proper grade with approved compacted gravel at the Contractor's expense.

However, if the undisturbed material encountered at the grade depth constitutes, in the opinion of the Engineer, an unstable foundation for the pipe, the Contractor will be required to remove such unstable material and backfill the trench to the proper grade with approved compacted material.

The Contractor shall excavate all trenches, including work necessary in working around existing pipe lines or other obstructions. The Contractor shall give notice to the Owners of any such lines or obstructions in order that they may have time to take the necessary precautions for protecting their property. The Contractor shall be responsible for protecting the Owner from any damage from his operations in such work.

In rock, excavation shall be carried three (3") inches below the bottom of the pipe, and loose earth or gravel, thoroughly tamped, shall be used for backfilling to the grade of the bottom of the pipe line.

After inspection of pipe lines has been finished on any completed portion of the work the trench may be backfilled. Backfilling shall be accomplished in compliance with the applicable portions of these specifications.

W.4.3. SHEETING, SHORING, AND BRACING

The sides of all excavations shall be sheeted, shored, and braced as deemed necessary by the Contractor so as to try to prevent slides, cave-ins, settlement, or movement of the banks and to maintain the excavation clear of obstructions that will in any way hinder or delay the progress of the work. In wet, saturated, or flowing materials, when it is necessary to install tight sheeting or cofferdams, wood or steel sheet piling of a design and type approved by the Engineer shall be used. All sheet piling, shoring and bracing shall have sufficient strength and rigidity to withstand the pressure exerted and maintain the sides of the excavation properly in place and protect all persons or property from injury or damage. When excavations are made adjacent to existing building or other structures or in paved streets, particular care should be taken to adequately sheet, shore, and brace the sides of the excavation to prevent undermining of, or settlement beneath, the structures or pavement. Underpinning of adjacent structures or pavement shall be done by the Contractor at his own cost and expense in a manner satisfactory to the Engineer and when required by the Engineer. The pavement shall be removed, the void satisfactorily refilled and compacted, and the pavement replaced by the Contractor; the entire expense of such removal and subsequent replacement thereof shall be borne by the Contractor. Sheeting, shoring and bracing shall not be left in place unless otherwise provided for in the contract or authorized by the Engineer. The removal of sheeting, shoring, and bracing shall be done in such manner as not to endanger or damage either new or existing structures, private or public properties, and so as to avoid cave-ins or sliding of the banks. All holes or voids left by the removal of the sheeting, shoring, or bracing shall be immediately and completely filled and compacted with suitable materials. Sheeting, shoring, and bracing ordered left in place by the Engineer will be paid for at the unit price bid for this item, when such pay item is provided. In the event no separate pay item is provided, then the cost of sheeting, shoring and bracing is to be included in such items as are provided.

W.4.4. PUMPING, BAILING AND DRAINING

The Contractor shall immediately remove all surface or seepage water from sewers, drains, ditches, and other sources which may accumulate during the excavation and construction work by providing the necessary underdrains or otherwise and by doing the necessary pumping, bailing or draining. The Contractor shall have available at all times sufficient equipment in proper working order for doing the work herein required. All water removed from excavations shall be disposed of in an approved manner so as not to create unsanitary conditions nor to interfere unduly with the use of streets, private driveways, or entrances. Pumping, bailing, draining, underdrains, ditches, etc., shall be considered as incidental work and will not be bid for as separate items but their cost shall be included in the contract prices bid in the Proposal for the various units of measure.

W.4.5. SUPPORT OF EXISTING PIPES ACROSS TRENCH

It shall be the responsibility of the Contractor to protect and support all water, sewer, gas, and other conduits crossed by the excavation or work to be performed by him or to arrange for their temporary removal and subsequent replacement. All expense incidental to this phase of the work shall be borne by the Contractor.

W.4.6. DISPOSAL OF EXCAVATED MATERIALS

Excavated materials, so far as needed and of a suitable character, shall be piled adjacent to the work to be used for backfilling as required. Excavated materials unsuitable for the backfilling or in excess of that required for backfilling shall be disposed of in an approved manner at locations designated on the plans or approved by the Engineer. Desirable top soil, sod, etc. shall be carefully piled separately and replaced in its original position when required. Excavated materials shall be handled at all times in such a manner as to cause a minimum of inconvenience to public travel and to permit safe and convenient access to private and public property adjacent to or along the line of the work. In parkways and easements where it is necessary to deposit excavated materials on lawns during the work, burlap or canvas shall be placed on the lawn to prevent contact between excavated materials and the lawn.

W.4.7. PROTECTION OF TREES, PLANTS, SHRUBBERY, ETC.

Where trees, plants, shrubbery, etc., are adjacent to the line of the work and are not to be removed or removed and replaced, the Contractor shall protect such trees, plants, shrubbery, etc., by substantial wooden boxes and guards and shall not permit machinery or employees to scrape, tear the limbs from or damage or attach guy cables to them and if, in the opinion of the Engineer, such trees, plants, shrubbery, etc. would be damaged by machinery, etc., hand excavation may be required. The Contractor shall be responsible for all damages to adjacent trees, plants, shrubbery, etc.

W.4.8. USE OF EXPLOSIVES

Should the Contractor elect to use explosives in the prosecution of the work, they shall be used with utmost precaution, and no blasting shall be done within 50 feet of the completed work or exposed pipes, conduits, etc. He shall assume all liability for any injury or damage to persons or property resulting from such usage. All necessary precautions shall be taken by the Contractor, and provisions shall be made for the protection of the new work; all blasting shall be so conducted as not to endanger persons or property. Only a sufficient quantity of explosives for the immediate day's work shall be kept at the site of the work by the Contractor. Caps, detonators and explosives shall be stored separately. The Contractor shall be responsible for, and shall make good, any damage caused by blasting or accidental explosions.

W.4.9. JACKING, BORING OR TUNNELING

Tunneling under highways, streets or railroads, when required and shown on the plans, shall be accomplished by means of jacking, boring or tunneling equipment which has been approved by the Engineer prior to starting tunneling operations. Tunnels shall be backfilled as completely as practicable with selected materials and compacted by means of mechanical tampers. The remainder of the tunnel backfill shall be of coarse sand, gravel or crushed rock hydraulically placed in such manner that no voids remain between the backfilled material and the roof of the tunnel.

W.4.10. PROTECTION OF BUILDINGS

The Contractor shall, at his own expense, shore up and otherwise protect any building or other structure which may, in the opinion of the Engineer, be endangered during the work, and he shall restore all buildings, culverts, fences, walls, or other properties disturbed during his work to a condition similar or equal to that existing before his operations.

The Contractor shall be responsible for any injuries to persons and property, for all damages to any pipe, conduit, sewer, or other structures injuriously affected by the work. The Owner shall not be liable therefore.

W.4.11. CROSSINGS TO BE KEPT OPEN

At such street, railroad, and all other crossings as may be designated by the Engineer, the trenches are to be filled in such a manner as to prevent any serious interruption of traffic upon the roadway or sidewalks. The cost thereof shall be borne by the Contractor.

W.4.12. PROTECTION OF UNFINISHED WORK

Before leaving work for the night, during a storm, or at other times, care must be taken to protect and securely close the unfinished end of the pipe. Any earth or other materials that may find entrance into the pipe through any such open or unplugged end of the pipe must be removed at the Contractor's expense.

W.4.13. LIGHTS AND GUARDS

The Contractor must provide and maintain adequate detours around the work under construction. The Contractor shall provide lights, warning signs, and/or watchmen to provide adequately for the safety of the public.

W.4.14. BACKFILL

Excavation shall be backfilled only with approved materials. The placing of backfill material shall not begin until approval has been given by the Engineer and shall be done immediately when so ordered by the Engineer.

Backfilling shall be brought up to an elevation slightly above the original ground level to allow for subsequent settlement. The top surface or slopes of all backfill shall be neatly graded off in a workmanlike manner, and where select topsoil, sod, or other material is removed and piled separately, such material shall be carefully replaced in a manner satisfactory to the Engineer.

W.4.14.1. BACKFILL MATERIAL

Backfilling shall be done with good sound earth. Broken concrete, rock, bituminous pavement, or other lumpy material shall not be used in the backfill except as the lumps are small and their dispersal in the backfill is made in the upper section in a manner satisfactory to the Engineer. Materials of a perishable, spongy, or otherwise improper nature shall not be used in backfilling. Where good sound earth is not available from the excavated material, pea gravel cushion and/or sand and granular backfill material will be used for the initial backfill operation to a point 12 inches above the top of the pipe. Gravel cushion and/or granular backfill material will not be required when concrete encasement is specified or used around the pipe. No backfill shall be made until it is authorized by the Engineer. All debris shall be removed. Sheeting, shoring and bracing shall be pulled and removed during the progress of the backfilling in a manner satisfactory to the Engineer.

W.4.14.2. CONCRETE ENCASEMENT

Concrete encasement, when required, shall be composed of a free flowing material consisting of small stone, pea gravel, limestone chat, or pit run sand and gravel and shall always consist of at least sixty (60) percent sand. The material shall all pass a three-quarter (3/4) inch screen and be free from sticks, lumps, stones, and organic matter. The material shall be mixed with Portland Cement in the proportions of one (1) part cement to ten (10) parts of the above described granular material, by volume measurement. Concrete encasement shall be poured either wet or dry as may be directed by the Engineer.

When concrete encasement backfill material is specified or ordered by the Engineer to be poured DRY, the Contractor shall place this material on each side of the pipe for the full width of the trench using shovels to cut the material back under the pipe and shall be tamped to a height of six (6") inches above the pipe to receive final backfill. Care must be exercised not to dislocate or disturb the grade and alignment of the pipe. If ordered by the Engineer to be poured WET, caution and care must be used not to float the pipe out of place. In the event pipes are floated out of proper position they shall be removed and relaid at the expense of the Contractor.

W.4.14.3. GRAVEL CUSHION OR BACKFILL

On water line construction when, in the opinion of the Engineer, the subgrade material encountered at grade is soft, spongy, and unsuitable, it shall be removed to such a depth that the replacement thereof with firmly tamped gravel or crushed stone will provide an unyielding, stable foundation. The gravel used in cushion or backfill

shall be pit run gravel or crushed stone and shall be free from silt, loam, or vegetable matter and shall be of a gradation suitable to the Engineer.

Gravel cushion or backfill, when required by the plans or the Engineer, will be paid for at the contract unit price and shall be the total compensation for furnishing all labor materials, tools, and equipment for performing this particular phase of work.

Subgrades that have been allowed to become unstable by neglect of the Contractor, by improper drainage or lack of drainage, and when in the opinion of the Engineer, the condition was caused by the neglect or fault of the Contractor, the Engineer shall order the Contractor to remove the unstable subgrade and replace the same with gravel at the expense of the Contractor, and no extra compensation will be allowed.

W.4.14.4. CEMENT STABILIZED BACKFILL

Where backfill material shown or called for on the plans to be used in the pipe zone is cement stabilized sand, the material shall extend from a point six (6") inches below the pipe to a point six (6") inches above the top of the pipe. The backfill material shall be deposited simultaneously on both sides of the pipe and worked carefully around and under the pipe with the point of a shovel. Payment for this bedding material shall be included in the unit price bid per linear foot of cement stabilized backfill material. Cement stabilized backfill shall contain a minimum of one (1) sack mix (per yard of pit run sand).

W.4.15. INITIAL BACKFILL

After the pipe has been laid the pipe lines shall be backfilled as follows unless otherwise shown on the plans:

Good sound earth, free of clods or lumps exceeding three (3") inches in any dimension, from the spoil bank shall be brought up by hand backfilling equally on each side of the pipe to a height of 12 inches over the top of the pipe. To insure a good firm bedding the backfill shall be cut under and around the pipe with shovels up to the spring line of the pipe. This backfill shall be done so as not to displace the pipe from its original position.

In summation, initial backfill will be composed of one (1) or more of the following in the manner described above:

- A. Good sound earth free of lumps or clods in dimension not exceeding three (3") inches shall be brought up 12 inches over the top of the pipe.
- B. Gravel cushion, when shown on the plans, shall be poured into place to the top of the pipe lines. Gravel cushion is defined as a free flowing material like sand or mixed sand and pea gravel, free from lumps, large stone, clay and organic material. When wet, the material shall not form mud or muck.

- C. 2,500 pound concrete poured and rodded into place six (6") inches over top of the pipe and all around the pipe a minimum of six (6") inches thickness as shown on the plans as concrete encasement or as required by the Engineer.

W.4.16. FINAL BACKFILL

The final backfilling operation shall be one (1) of the following for any of the methods used in the initial backfill procedure, unless otherwise shown on the plans:

- A. The remainder of the backfill material may be made from the spoil bank, free from clods or lumps exceeding six (6") inches in any dimension, placed in uniformly compacted layers not exceeding one (1') foot in loose depth and hand or mechanically tamped in a manner approved by the Engineer.
- B. The backfill material may be placed loosely in the trench, rounded up over the trench slightly above the original ground elevation without tamping and the trench jetted with water until all settlement has ceased. In open rights-of-way the trench may be left crowned above the original ground as directed by the Engineer. Except in cases where pipe lines cross open field, surplus soil is in such excess that drainage and/or adjacent property may be affected, the surplus material shall be removed from the site as directed by the Engineer.
- C. Where an asphalt existing street or driveway surface has been cut (all asphalt and concrete pavements shall be saw cut before excavation), the following procedure is to be used in backfilling and replacing the pavement (unless otherwise shown on the plans):
 - (1) The top 24 inches of the trench shall be filled with gravel aggregate, consisting of hard durable uncoated pebbles or stone particles mixed with sand, free from clay lumps, shales, salt or alkali, well graded from coarse, not to exceed three (3") inches, to fine with 55% retained on ¼ inch screen or washed gravel will be poured and compacted into place taking care not to disturb the pipe to level with the finished surface.
 - (2) In not less than 14 days after backfill of the pavement cut is completed, unless otherwise approved by the Engineer, the Contractor shall remove the gravel backfill to one and one-half (1 1/2") inches below the pavement surface and furnish and place fine graded surface course hot mix asphaltic concrete, which when compacted will be not less than one and one-half (1 1/2") inches thick.
- D. Where concrete pavement is cut, the pavement shall be cut by sawing six (6") inches beyond trench width on each side of the ditch and breaking out the concrete. The reinforcing steel shall be cut and bent back to be replaced after pipe laying operation has been completed. The ditch shall be backfilled from around the pipe and over the pipe to the pavement surface with pit run gravel or washed gravel jetted into place as in paragraph C (1) above. In not less than five (5) days after the backfill of pavement cut is completed, the

Contractor shall remove gravel backfill to six (6") inches below the surface of the pavement and shall pour a six (6") inch thick 3,000 psi concrete slab the width of the paving cut.

Prior to completion and final acceptance of the entire job, the Contractor will be required to refill and recrown all trenches which have settled below ground level or where the crown is reduced to indicate that such subsidence will occur.

W.5.1. FLANGED CAST IRON PIPE AND FITTINGS

All flanged end, flange and bell, and flange and spigot pipe and fittings shall meet ANSI/AWWA Specifications as outlined below and shall have American Standard Class 125 flanges. Bolts, bolt circles, heads and nuts shall be standard as to quantity of material. Gaskets shall be made from the best quality insertion rubber 1/16 inch thick. Flanged fittings shall be American Standard Class 125, except where noted on the plans.

W.5.2. FITTINGS

Fittings shall conform to ANSI/AWWA - C110/A21.10 or ANSI/AWWA - C153/A21.53 and ANSI/AWWA - C111/A21.11 standards.

All fittings shall be cement lined according to ANSI/AWWA - C104/A21.4. Fittings may be gray or ductile iron.

W.5.3. DUCTILE IRON PIPE

Ductile iron pipe for water line construction shall be as described in Section DIP – DUCTILE IRON PIPE AND FITTINGS of these specifications.

W.5.4. PVC PIPE

This specification designates general requirements for polyvinyl chloride pipe with integral thickened wall bells used primarily for conveying potable water under pressure.

All pipe furnished shall meet the requirements of AWWA C-900 or latest revisions thereof. PVC pipe must have a dimension ratio (DR) as shown on the plans or noted in special provision with outside diameters equivalent to cast iron pipe. All pipe furnished shall have a pressure class rating as shown on the plans or noted in special provisions at 73.4° F, and shall bear the National Sanitation Foundation Seal of approval for potable water pipe. Provisions shall be made for contraction and expansion at each joint with a rubber ring type gasket in a thickened bell as part of each joint, or a separate double bell coupling. All joints shall be made using a non-toxic lubricant in accordance with manufacturer's recommendations.

W.5.5. REINFORCED CONCRETE WATER PIPE STEEL CYLINDER TYPE
PRETENSIONED REINFORCEMENT: (Steel Cylinder Type) (NOT USED)

W.5.6. AWWA C 303-REINFORCED CONCRETE WATER PIPE (NOT USED)

W.5.7. ORIGIN OF PIPE

All pipe shall be new, and shall be manufactured within the Continental Limits of the United States of America, and shall be approved by Underwriters Laboratories, Inc. or Factory Mutual and acceptable to the Texas State Board of Insurance.

W.6.1. GATE VALVES

In general, all gate valves shall conform to the Standard Specifications for Gate Valves for Ordinary Water Works Service, AWWA C 515 or latest revision for valves up to 12 inches, and AWWA C 500, or latest revision for sizes over 12 inches, except for changes or additions specifically outlined as follows:

Valves shall have hub, flanged, or mechanical joint ends, or a combination of hub, flange, or mechanical joint ends as may be specified. Bell and spigot pipe sizes two (2") inch to 24 inches will use valves with bells conforming to AWWA C 100. Mechanical joint pipe sizes two (2") inch to 36 inches will use valves with bells conforming to AWWA C 111. Flanged pipe will use valves with flanged ends conforming to ASA B 16.1 Class 125.

All gate valves shall be iron body, bronze mounted, resilient seat or double disc, parallel seat, non-rising stem, internal wedging type. Valves must embody the best workmanship and finish, and open and close freely and easily. In closing, the gates must move without friction to their position opposite their ports, both discs being then closed squarely against the seat rings. When valves are in full opened position, the discs shall be raised clear of the water way and provide an opening equal to the full normal diameter of the valve.

Gate valves shall be tested at a hydrostatic pressure of 300 pounds per square inch, and shall be guaranteed for 150 pounds water working pressure. Any leakage at the pressures through any castings or between the bronze ring and the cast iron body shall cause the said casting or assembled fitting to be rejected. No plugging or patching to stop any leakage will be permitted.

All gate valves shall open by turning to the left.

Gate valves two (2") inch to 16 inches, inclusive, shall be nut or handwheel operated, as shown on the plans. Gate valves 20 inches and larger shall be equipped with wheels and nuts. Gate valves 20 inches and larger shall be equipped with spur or beveled gears as indicated on the plans. All geared valves shall be equipped with extended type grease cases. Stuffing boxes shall be located on top of valve bonnet and shall be outside of the gear case. Gate valves 18 inches and larger shall be

equipped with non-rising stem bypass valves, wheel and nut operated, of the following sizes:

- Gate valves 18" and 20" - 3" bypass
- Gate valves 24" and 30" - 4" bypass, stem 60,000
- Gate valves 36" and 42" - 6" bypass, stem 80,000

All bronze metal used in the working parts of the valve, with the exception of the valve stem, shall have a tensile strength of 34,000 pounds per square inch.

Gate valves of the internal wedging type shall have solid wedges made of high grade bronze, having a tensile strength of at least 50,000 pounds per square inch, with wide bearing surfaces of sufficient thickness to guarantee no bending or denting under abnormal strain, and such bearing surfaces shall be ground to flat surfaces on each face. The wedges in valves 12 inches and over may be trimmed with a heavy bronze mounting.

Gate valve stems or spindles shall be of high-tensile strength manganese bronze, or other non-corrodible metals which produce a valve stem or spindle having tensile properties at least equal to those of Class "A", Leaded High-Strength Yellow Brass (Manganese Bronze) Sand Castings, ASTM Designation B.132.

A thrust collar on the spindle shall be cast integral with the spindle. A spindle having a thrust collar fastened or upset by any mechanical means is not acceptable. (There shall be provided a stem collar bushing suitably machined, to permit repacking the valve when it is in full open position. The stuffing boxes and glands shall be bronze bushed).

All gray iron castings shall be made from superior quality iron, of touch and even grain, having a tensile strength of not less than 30,000 pounds per square inch, without blow or sand holes or defects of any kind.

All gate valves installed in horizontal position whose discs do not revolve shall be equipped with bronze tracks, rollers and scrapers. Valves installed flat in vertical lines shall be equipped with bronze shoes and slides.

The manufacturer shall be required to furnish the Owner with certified copies of the hydrostatic tests and physical test of all metals used in the manufacture of the valves.

Detail prints shall be furnished on all valves.

Gate valves (including tapping sleeves and valves) shall be Clow, Kennedy, Mueller, or approved equal.

W.6.2. BUTTERFLY VALVES

Butterfly valves shall be of the full lug (water service) body style as noted on the plans. All valves shall be suitable for use with ANSI 125 pound flanges and meet the requirements of AWWA C-504. Bodies shall be cast or ductile iron.

Lug body valves shall have a retained seat and shall provide tight shutoff up to the full valve rating on dead end or isolation service without the use of downstream flanges.

All valves shall be furnished with self-lubricated bearings of TFE coated stainless steel. Shaft seals shall be provided to prevent leakage and to protect bearings from internal or external corrosion.

Seats shall be of the reinforced resilient type and shall be field replaceable. Seats shall also act as a body liner to prevent flow from contacting the body casting. Seats shall have flange sealing lips to provide a positive seal without use of flange gaskets.

Seats shall be of Neoprene for Water Service. Shafts shall be one piece and shall be of 316 stainless steel. Shaft diameter shall meet the 75B standard from AWWA specification C 504 for butterfly valves. Shafts shall be finish ground and polished to minimize bearing and shaft seal wear. Shafts of eight (8") inches and larger valves shall have a non-adjustable thrust collar.

Discs shall be bronze or semi-steel with welded nickel edge. The disc-to-shaft connections shall be type 306 stainless steel. Pins, shaft and disc of all valves shall be individually machined and completely interchangeable.

Valves shall be available with field interchangeable manual or powered actuators as required. The actuator-to-shaft connection shall be designed to shear and prevent internal valve damage if the disc closes on foreign material in the pipeline. All actuators shall provide external indication of disc position.

All manually actuated valves shall be operated using a cast iron housing designed for burial service with two (2") inch square wrench nut actuator available in buriable construction. All units will have adjustable open and closed position stops with provision to prevent accidental adjustment changes. Operating shaft to be supported axially and radially at input end by permanently lubricated bronze thrust and sleeve bearings.

Valve and actuators shall be as manufactured by Mueller, DeZurik, American Darling or approve equal.

W.6.3. AIR VALVES

Air valves and vacuum valves, when shown on the plans or required, shall be the float and lever type, as is manufactured by Val-Matic, or equal. The inlet ends will be screwed for two (2") inch and smaller, and flanged for three (3") inch and larger.

W.6.4. BRASS VALVES

One and one-half (1-1/2") inch and two (2") inch brass valves, when shown on the plans or required, shall be of all brass construction with double discs, and parallel seats, and warranted for a water working pressure of 150 pounds per square inch.

They must be of non-shock type, with screw ends having internal standard pipe threads. They shall be fitted with a malleable iron operating wheel, and shall open by turning to the left.

W.6.5. INSTALLATION OF GATE VALVES

All valves shall be installed as shown on the plans. For each gate valve the Contractor shall furnish and install a valve box.

Valve boxes shall be three (3) piece screw type cast iron of the extension type and shall be similar to Mueller No. H-10360 or an approved equal. For 14 inch and 16 inch valves Mueller No. H-10357 with No. 160 base or equal shall be furnished and installed. For 18 inch and larger valves manholes five (5') feet in diameter will be required.

Valves shall be carefully handled and lowered into position in such a manner as to prevent damage to any parts of the valve.

Valves shall be placed in such positions as indicated on the plans with the stem in a vertical position and securely held until all connections have been made.

Gate valves and pipe fittings shall be set and jointed to new pipe in the manner herein specified for cleaning, laying, and jointing pipe. Hub ended valves shall be jointed to pipe only with lead joints. Flanged and mechanical joint valves will be preferred where suitable.

Cast iron valve boxes shall be firmly supported and maintained centered and plum over the wrench nut of the gate valve. The box cover shall be set flush with the surface of the ground or at such other level as may be directed.

W.7.1. FIRE HYDRANTS

Fire hydrants, when required and when shown on the plans, shall conform strictly to AWWA Specifications C-502 Fire Hydrants for Ordinary Water Works Service, with the following supplementary details and changes or additions:

- A. Fire hydrants shall meet the requirements of the Texas State Board of Insurance.
- B. Type of shut-off may be compression type with the flow or compression type against the flow.

- C. Unless otherwise ordered inlet connection shall be six (6") inch standard mechanical joint hub, complete with all joint accessories. Inlet valve shall have not less than a five (5") inch opening.
- D. All hydrants shall be equipped with two (2) hose nozzles and one (1) pumper nozzle. The hose nozzles shall be two and one-half (2-1/2") inch nominal I.D. National Standard Thread. Pumper nozzle shall be four (4") inch nominal I.D. National Standard Thread.
- E. Unless otherwise required by pipe laying conditions, hydrants shall be furnished for a four (4') foot depth of trench.
- F. A drain opening will be required and drain valves operating through gravity will not be accepted.
- G. All fire hydrants shall open by turning to the left (counterclockwise).
- H. All fire hydrants shall be painted with two (2) coats of paint over one (1) shop coat.
- I. No hydrant will be accepted that requires less than twelve (12) turns to open.
- J. Hydrants shall be of the breakable type, designed to break approximately three (3") inches, but not over five (5") inches above the ground line. These parts shall be of the breakable flange type, or integral flange with sawed bolts. Breakable flanges screwed to the standpipe are not acceptable. Flanges shall be so designed that an end wrench can be used on the nuts and bolts. Provision shall be made in the design of the stem to disconnect the stem from the hydrant parts above the standpipe breakpoint in the event of traffic accident. If breakable or sleeve type couplings are used, they shall have sufficient torsional strength such that a torsional failure of the stem will occur at some point other than at the coupling. Design of the coupling shall be such that when the coupling is broken no parts will come loose and fall into the hydrant, and the break will not occur through the pins or bolts holding the coupling to the stem.
- K. All hydrants shall be capable of being extended to accommodate future grade changes.
- L. Main valve seats on compression type hydrants closing with the flow shall be of such design that incorrect positioning is impossible and that the threads will be adequately guided into position. Arrangements shall also be made to hold the main valve gasket in place during assembly.
- M. All packing gland nuts shall be bronze.

- N. Gaskets furnished for ground line flanges shall be full face or the flange shall be recessed to hold the gasket in place.
- O. Operating stems whose threads are located in the barrel or waterway shall be of manganese, bronze, everdur, or other high quality, non-corrodible metal, and all working parts in the waterway shall be bronze to bronze. Operating stems whose threads are not located in the barrel or waterway may be made of high grade bronze, genuine wrought iron or steel, and stem nuts shall be bronze. Iron or steel stems shall have a bronze, stainless steel or other non-corrodible metal, sleeve where passing through stuffing box or O-rings. Operating threads must be sealed against contact with the water at all times regardless of open or closed position of the main valve.
- P. O-rings may be furnished in lieu of packing. They shall be the double O-ring type, designed so that the rubber rings move against a bronze surface.
- Q. Hydrants closing with or against the pressure must have a bronze cap nut to seal the bottom end of stem threads against contact with water.
- R. Hydrants must be so constructed that the nozzle may be faced in any direction.
- S. No hydrant will be considered which has not been regularly manufactured and in successful continuous use for at least ten (10) years.

W.7.2. FIRE HYDRANT INSTALLATION

Fire hydrants shall be located as shown on the plans or as directed by the Engineer and shall be set truly vertical with the base resting upon a stone or concrete slab four (4") inches thick and approximately 12 inches square. The base of the hydrant shall be surrounded by not less than two (2) cubic feet of clean crushed stone or gravel, size one (1") inch to two (2") inches. Pipe joints shall be made as specified for pipe laying. The hydrants shall be carefully and substantially blocked against firm trench walls with sound stone, sound slabs of old concrete or 2,000 p.s.i. concrete, but no additional pay will be allowed for same.

W.8. INSPECTION

During the process of unloading, all pipe and accessories shall be inspected by the Contractor for loss or damage in transit. No shipment shall be accepted by the Contractor until notation of any lost or damaged material shall have been placed on the bill of lading by the agent of the carrier.

All pipe and accessories shall be laid, jointed, tested for defects and for leakage with pressure, and chlorinated in the manner herein specified in the presence of the Engineer or his authorized Inspector and subject to their approval.

All material found during the progress of the work to have cracks, flaws, or other defects will be rejected by the Engineer, and the Contractor shall promptly remove from the site of the work such defective material.

The Contractor shall be responsible for all material furnished to him or by him and shall replace at his own expense all such material that is found to be defective in manufacturing or that has become damaged in handling after delivery by the manufacturer. The Contractor shall be responsible for the safe storage of material furnished by or to him until it has been incorporated in the completed project.

Pipe fittings, valves and other accessories shall be unloaded at the point of delivery, hauled to, and distributed at the site of the project by the Contractor. They shall, at all times, be handled with care to avoid damage. In loading and unloading they shall be lifted by hoists, slid, or rolled on skidways in such a manner as to avoid shock. Under no circumstances shall they be dropped. Pipe handled on skidways must not be skidded or rolled against pipe already on the ground.

In distributing the material at the site of the work, each piece shall be unloaded opposite or near the place where it is to be laid in the trench. Pipe shall be handled in such a manner that a minimum amount of damage to the coating will result. Damaged coating shall be replaced in a manner satisfactory to the Engineer.

Pipe shall be placed on the site of the work parallel with the trench alignment and with bell ends facing the direction on which the work will proceed unless otherwise directed. The interior of all pipe, fittings, and other accessories shall be kept free from dirt and foreign matter at all times.

W.9. PIPE HANDLING

Proper implements, tools, and facilities shall be provided and used by the Contractor for the safe and convenient prosecution of the work. All pipe, fittings, and valves shall be carefully lowered into the trench piece by piece by means of derrick ropes or other suitable tools or equipment in such a manner as to prevent damage to pipe or pipe coating. Under no circumstances shall pipe or accessories be dropped into the trench.

At all times when pipe laying is not in progress, the open ends of the pipe shall be closed by approved means. No trench water shall be permitted to enter the pipe. All foreign matter or dirt shall be removed from the pipe, and it shall be kept clean by approved means during and after laying. No pipe shall be laid in water or when trench conditions are unsuitable for such work.

Cutting of pipe for inserting valves, fittings, or closure pieces shall be done in a neat workmanlike manner without damage to the pipe. Concrete pressure pipe shall not be cut on the job without the approval of the Engineer.

W.10.1. DUCTILE IRON PIPE LAYING AND JOINTING

The spigot shall be centered in the bell and the pipe forced "home" and brought into true alignment. Water lines shall be laid such that the full length of the barrel of the pipe shall rest on undisturbed or compacted fill or gravel cushion for the entire length of the joint of pipe except at bell holes, to insure that there is no beam action of the pipe. It shall be secured there with earth carefully tamped under and on each side of it, excepting at the bell holes. Care shall be taken to prevent dirt from entering the joint space. No blocking up of the pipe or joints will be permitted. Whenever it is necessary to deflect pipe from a straight line, either in the vertical or horizontal plane, to make small angles in alignment to avoid obstructions, to plumb stems, or for other reasons, the degree of deflection shall not exceed that shown by the Handbook of the Cast Iron Research Association.

Although the above section applies primarily to bell and spigot pipe, all applicable portions apply as well to "Tyton", "Bell-tite", or "Fastite" and mechanical joint pipe.

W.10.2 JOINTING PIPE

- A. Materials: All component parts are to be furnished with and included in the price bid for pipe. The materials consist of a circular rubber gasket of modified bulb shape in cross section.
- B. Procedure: Remove any foreign matter in the gasket seat of the socket, wipe gasket clean, flex gasket and place in socket with the large round end or bulb end entering first. Seat gasket evenly around inside of the socket with the groove fitted over the bead. Remove any bulges. Apply a thin film of lubricant furnished by the pipe manufacturer to the inside surface of gasket. No lubricant other than that furnished with the pipe by the pipe manufacturer will be allowed to be used. Wipe plain end of pipe to be entered, clean and place in approximate alignment with the bell of the pipe to which it is to be joined. Apply a thin film of the lubricant to the outside of the plain end for about one (1") inch back from the end. Align the pipe and carefully enter the plain end into the socket until it just makes contact with the gasket. Complete joint assembly by forcing the plain end of the entering pipe past the gasket until it makes contact with the bottom of the socket. For pipe in sizes 10 inches and larger, a jack-type tool will be used to make up the joint and complete the assembly of the joint in forcing the plain end of the pipe past the gasket.
- C. Deflection of Joints: The maximum deflection at each joint will not exceed 5 degrees for sizes through 12", 4 degrees for 14" and 16", and 3 degrees for 18", 20" and 24" pipe sizes. If a profile is shown on the plans, the Contractor will be required to lay the line to conform to the grades shown. If it is necessary that water line shall have over 42 inches of cover in order not to exceed the manufacturer's recommendations for deflection of the pipe, the Contractor shall excavate the ditch with no extra compensation. Regardless of the depth of ditch necessary, the Contractor shall, under no condition, exceed

the manufacturer's recommendations for deflection of the pipe at joints. The Contractor will receive no extra compensation for extra depth necessary to cross existing utility lines.

Attention is called to the fact that concrete cylinder pipe must be laid on grade to insure proper jointing of the pipe. The grades will be determined in such a manner so as to avoid excessive use of fittings and specials and to provide a uniform grade between low points and high points. No additional compensation will be paid for extra trench depth required, to meet these conditions. Any differences of opinions concerning the grades as set by the Engineer must be resolved by the Contractor prior to pipe laying.

W.11. CLEARANCE FROM OTHER PIPES

Water lines and sanitary sewers shall be installed no closer to each other than nine (9') feet. Where this cannot be achieved, the sanitary sewer shall be constructed of pressure type cast iron pipe or the equivalent of 150 psi pressure pipe with water tight joints used in water main construction for the nine (9') foot clearance. No physical connection shall be made between a drinking water supply, public or private, and the sewer or any appurtenances.

Any facilities for permitting discharge of drinking water into the sewer or any appurtenance thereof shall be constructed so as to prevent any possibility of sewage entering the drinking water system.

W.12.1. SERVICE CONNECTIONS

Water service connections shall be made by tapping the mains at specific points as designated by the Engineer. Service taps shall be made after the mains have been laid. The work shall be done by experienced workmen with suitable tapping machine and tools.

The copper (as called for on the plans) service pipe shall be connected to the corporation cock at the main and laid in the trench from one side to the other every ten (10') feet to give ample space for expansion and contraction of the pipe. The service pipe shall have a cover of 24 inches, except where the service pipe shall pass under the curb. At this point the service pipe shall be a minimum of 18 inches under the top of the curb or a minimum of six (6") inches under the bottom of the curb and gutter section. Excessive bending of the pipe which will injure or reduce the cross sectional area of the pipe will not be permitted. The length of the service line shall extend from the mains to a point two (2') feet back of the street curb where curb exists, or to the property line if no curb exists. If there is a curb, the curb shall be marked with the letter "W" in good quality green paint at the point where the service pipe passed under the curb.

W.12.2. SERVICE CONNECTION MATERIALS

The service pipe shall normally be 3/4 inch type "K" soft copper pipe, and shall conform to ASTM Class "A" Specifications and U.S. Government Specifications WW-T-799 as well as AWWA Specification 7S-CR. Within structures hard drawn Type L tubing (furnished in straight lengths) shall be used, rigidly and adequately supported.

Corporation cocks and angle stops shall be as shown on the plans.

Water meter boxes where required shall be of concrete construction with cast iron locking type lid. Brooks Products, Inc. plate No. 36 H.L.D. meter box for 3/4" water meter or equal.

W.13. CONNECTION TO EXISTING WATER MAINS

Where indicated on the plans and/or hereinafter specified, the Contractor shall connect the new main with existing mains or lines. The Contractor shall furnish all labor, materials, equipment or services required for the locating and uncovering of the existing line, the making of cuts in the existing line, the removal, relocation, and lowering of existing lines as required, dewatering of the trench, connecting of the existing line into the new main and any and all appurtenant work required for a complete connection. Relocated mains or lines shall be laid so that all valves so relocated or installed shall be set vertically.

Only such connections to existing mains as are necessary to load, test and sterilize mains under construction with water from city mains will be permitted prior to the sterilization of new mains. All other connections to existing mains from a new main being constructed shall be made only after the new main has been adequately and satisfactorily sterilized and the Engineer or his inspector has authorized the connections to be made. Contractors will be required to plug and block lines, crosses, tees or other fittings installed in the new main to permit testing and sterilization prior to the making of connections. Such plugs and blocking shall be adequate to withstand a test pressure of 150 pounds per square inch.

Where cut-ins are made immediately adjacent to valves which are under pressure, the Contractor shall take all necessary precautions to brace such valves with temporary blocking and bracing which shall be of ample size and properly placed to prevent movement or blowing off of any pipe, valves or fittings due to water pressure on the main.

Connections to existing water mains shall be made at the locations shown, as specified, and/or as directed by the Engineer. All such connections shall be made in a most expeditious and workmanlike manner to cause the least inconvenience to water customers and to traffic and shall be made at night unless otherwise approved by the Engineer. The detailed schedule of operations for making each connection shall be approved by the Engineer or his inspector before any work thereupon is commenced.

W.14. HYDROSTATIC TEST

After the pipe has been laid and backfilled but prior to replacement of pavement each valved section of newly laid pipe shall be subjected to a hydrostatic pressure test. For any section being tested the pressure applied shall be such that at the highest point in the section the pressure shall be 127.5 pounds per square inch. Adjustment as required shall be made for differential in elevation between the low point of the section being tested and the centerline of the pressure test gauge. The maximum pressure shall be 180 psi at the lowest point.

Each valved section of pipe shall be slowly filled with water, and the specified test pressure measured to the point of lowest elevation, shall be supplied by means of a pump connected to the pipe in a satisfactory manner. The pump, pipe connection, and all necessary apparatus including gauges and meters shall be furnished by the Contractor. The Owner will furnish water for filling lines and making tests through existing mains.

The duration of each pressure test shall be four (4) hours. Before applying the specified test pressure all air shall be expelled from the pipe. To accomplish this taps shall be made, if necessary, at the points of highest elevation and afterwards tightly plugged. At intervals during the test the entire route of the pipe line shall be inspected to locate any leaks or breaks. Any defective joints, cracked or defective pipe, fittings, or valves discovered in consequence of this pressure test shall be removed and replaced with sound material in the manner provided, and the test shall be repeated until satisfactory results are obtained.

No pipe installation will be accepted until the leakage is less than a rate equal to 22 gallons per inch of nominal diameter of pipe line per mile over a 24 hour period for ductile iron pipe and 20 gallons for PVC.

Should any test of pipe in place disclose leakage greater than that specified, the Contractor shall at his own expense locate and repair the defective joints until the leakage is within the specified allowance.

Leakage is defined as the quantity of water supplied into the newly laid pipe, or any valved section of it, necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled.

W.15. STERILIZATION OF WATER MAINS

During the construction operations workmen shall be required to use utmost care to see that parts of the structures, inside of pipes, fittings, jointing materials, valves, etc., the surface of which come in contact with City water are maintained in a sanitary condition.

Every effort must be made to keep the inside of the pipe, fittings and valves free of all foreign matter, sticks, dirt, rocks, etc. As each joint of pipe is being laid it must be

effectively swabbed so that all foreign matter is removed. All fittings and exposed open ends of pipe must be blocked or capped until the line is completed.

When the entire pipe line or certain selected sections thereof have been completed, tested and made ready for turning over to the Owner ready for use, the line or section of line shall be thoroughly sterilized according to AWWA C-651 and the following procedure:

- A. The line shall be flushed out, completely replacing its entire volume with water from the Owner's mains.
- B. Chlorine will be injected into the section of line being sterilized so that its entire capacity will be filled with water containing chlorine in the amount of 50 p.p.m. or in such other quantity as determined by the Engineer. The sterilizing agent shall be introduced at one end of the section and the water released from the opposite end until the sterilizing agent is present at the discharge end in such quantity as to indicate a residual-chlorine of 50 p.p.m. or as otherwise determined by the Engineer. All valves shall be opened and closed several times and the sterilizing solution permitted to remain in the pipe line section for not less than 24 hours.
- C. At the end of the sterilizing period the sterilizing solution shall be discharged from the pipe and replaced with water direct from a main of the Owner.
- D. A sample of water from the sterilized main shall be taken (not through a fire hydrant) from a suitable tap under the supervision of the Engineer or his Inspector and submitted to an approved testing laboratory or the State Health Department for analysis. If the test shows a satisfactory quality of water, the line so sterilized shall then be placed in service by the Contractor who shall notify and assist the Water Superintendent in location and operation of all valves installed by the Contractor. If the sample shows unsatisfactory quality of water, the process of sterilization shall be repeated until a satisfactory water is obtained.

Sterilization of the line or any section thereof shall not be commenced until the Engineer's approval of the method, apparatus, sterilizing agent, and the section of the line has been obtained.

W.16. CONCRETE BACKING

Concrete having compressive strength of not less than 2,000 pounds per square inch shall be used as a cradle or backing where shown on the plans or where directed by the Engineer. All materials including aggregates, cement, and water, as well as the mixing and placing of the concrete, shall be approved by the Engineer. Bends of 22-1/2 degrees and greater, plugs, and all tees, crosses, etc. shall be placed between solid ground and the fitting to be anchored; the area of bearing on pipe and on ground in each instance shall be that required by the Engineer. The backing shall, unless

otherwise directed, be placed so that the pipe and fitting joints will be accessible for repair.

Concrete shall be composed of normal Portland Cement, coarse aggregate, fine aggregate, and water proportioned and mixed properly in a concrete mixer. Transit mix concrete will be allowed. Portland Cement shall be Type 1 and shall be fully protected until incorporated in this work. Gravel to be used for coarse aggregate shall consist of clean hard, durable grains, and shall be free from an excess of salt or alkali and foreign materials. Concrete shall have a compressive strength of not less than 2,000 pounds per square inch at 28 days and shall not have less than three (3) sacks of cement nor more than six and three-quarters (6-3/4) gallons of water per cubic yard of concrete.

W.17. CLEAN-UP

During construction the Contractor shall maintain the premises in an orderly, neat, and presentable manner. Scraps and debris shall not be left scattered but shall be assembled together and such as are unusable shall be moved from the premises or disposed of to the satisfaction of the Engineer. When construction of the contract has been otherwise completed, the Contractor shall remove all left over construction materials, equipment, scraps, debris, and rubbish. Earthwork shall be smoothed and graded to the lines shown on the plans. Backfill over all trenches shall be left in a uniform and neat condition.

W.18. MEASUREMENT AND PAYMENT

The bid items include the work of every nature required for the completion of the job in every respect except as may be otherwise provided for in these specifications. The Contractor shall include the furnishing of all materials and labor, including any incidental labor, in his bid prices.

- A. Pipe: Pipe will be measured from center of fitting to center of fitting or end of pipe without any deduction for the length of intermediate fittings or valves. Payment will be made at the price bid per foot for furnishing and installing pipe, which bid price will include all costs for the complete pipe installation, including trenching and backfill, and shall include all work not otherwise provided for in these specifications.
- B. Fittings: Payment for fittings will be at the unit price per ton bid for such work. This shall include the furnishing and installation of the fitting. This unit price shall also include the cost of concrete backing or blocking. Weight shall be determined from the manufacturer's catalogs. No separate payment will be made for galvanized pipe fittings. If mechanical joint fittings are used, payment will be based on weights of mechanical joint fittings and joint accessories.

- C. Gate valves and tapping sleeves and valves will be paid for at the unit price bid for each, which price shall include the cost of the valve or tapping sleeve and valve, as well as the valve box and labor complete in place.
- D. Fire Hydrants: Payment for the furnishing and installing of fire hydrants will be made at the unit price bid, complete in place.
- E. Connections to Existing Mains: Payment for valves, fittings, pipe, etc., will be made at the unit price bid for the various items. No additional payment will be made for "WET" connections, but a lump sum will be paid for each "DRY" connection made as specified in these specifications.
- F. Concrete Backing: No separate payment will be made for concrete backing or blocking of fittings, valves, etc. The Contractor shall include such costs in the price bid for setting fittings, valves, etc.
- G. Hydrostatic Test: No separate payment will be made for the hydrostatic test. The cost of the test shall be included in the bid price for pipe in place.
- H. Sterilizing: No separate payment will be made for sterilizing the main. The cost of such work shall be included in the price bid for pipe in place.
- I. Water Services: Water services will be paid for as a lump sum bid for each water service connection. The lump sum will include tapping the main, furnishing and installing the corporation stop, and the copper service line necessary to connect to the existing water service.

W.19. SANITARY SEWER AND WATER MAIN SEPARATION DISTANCES

The following separation distances shall be maintained between potable water and wastewater treatment plants, and waterlines and sanitary sewers.

- A. Water line/new sewer line separation. When new sanitary sewers are installed, they shall be installed no closer to waterlines than nine (9') feet in all directions. All separation distances shall be measured from the outside surface of each of the respective pieces. Sewers that parallel waterlines must be installed in separate trenches. Any appurtenance shall be designed and constructed so as to prevent any possibility of sewage entering the drinking water system. Where the nine (9') foot separation distance cannot be achieved, the following guidelines will apply:
 - (1) Where a sanitary sewer parallels a waterline, the sewer shall be constructed of cast iron, ductile iron or PVC meeting ASTM specifications with a pressure rating for both the pipe and joints of 150 psi. The waterline shall be located at least a minimum of two (2') feet above the wastewater main or lateral, measured vertically, and at least a minimum of four (4') feet away, measured horizontally, from the

wastewater main or lateral. The sewer shall be located below the waterline.

- (2) Where a sanitary sewer crosses a waterline and the sewer is constructed of cast iron, ductile iron or PVC with a minimum pressure rating of 150 psi. The potable waterline shall be at least a minimum of six (6") inches above the wastewater main or lateral. Whenever possible, the crossing shall be centered between the joints of the wastewater main or lateral.
 - (3) Where a sewer crosses under a waterline and the sewer is constructed of ABS truss pipe, similar semi-rigid plastic composite pipe, clay pipe or concrete pipe with gasketed joints, the potable waterline shall be at least a minimum two (2') feet above the wastewater main or lateral. The initial backfill shall be from one quarter diameter below the centerline of the pipe to one (1) pipe diameter (but not less than 12 inches) above the top of the pipe.
 - (4) Where a sewer crosses over a waterline all portions of the sewer within nine (9') feet of the waterline shall be constructed of cast iron, ductile iron, or PVC pipe with a pressure rating of at least 150 psi using appropriate adapters. In lieu of this procedure the new conveyance may be encased in a joint of 150 psi pressure class pipe at least 18 feet (or longer) and two (2) nominal sizes larger than the new conveyance. The space around the carrier pipe shall be supported at five (5') feet intervals with spacers or be filled to the springline with washed sand. The encasement pipe should be centered on the crossing and both ends sealed with cement grout or manufactured seal.
- B. Waterline/manhole separation. Unless sanitary sewer manholes and the connecting sewer can be made watertight and tested for no leakage, they must be installed so as to provide a minimum of nine (9') feet of horizontal clearance from an existing or proposed waterline. Where the nine (9') foot separation distance cannot be achieved, a carrier pipe as described in subsection A (1) of this section may be used where appropriate.